THE UNIVERSITY RECORD

[March 197

UNIVERSITY OF FLORIDA

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1970-1971

Undergraduate Catalog Issue

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UNIVERSITY OF FLORIDA
REVISED FEE SCHEDULE, 1970-71

At its meeting on June 8, 1970 the Board of Regents adopted a schedule of uniform fees, fines and penalties for all institutions in the State University System, to become effective with the Fall Quarter, 1970.

Adoption of this uniform schedule necessitates the following modifications to the information contained in the 1970-71 Catalogs of the University of Florida. Page references are to the Undergraduate Catalog issue. Revised language is underscored. These modifications supersede any references to fees wherever they appear in current publications.

Page 139 APPLICATION FEE

Each application for admission to the University received on or after October 1, 1970 must be accompanied by an application fee of $15.00. Application fees are non-refundable.

Page 140 REGISTRATION AND INSTRUCTIONAL FEES

. . . All payments, for full or part-time students, received after the due date are subject to a $25.00 Late Fee.

Page 141 COLLEGE OF LAW

Application Fee. Applications for admission of non-University of Florida students to the College of Law, received on or after October 1, 1970, must be accompanied by an application fee of $15.00. Application fees are non-refundable.

Acceptance Deposit. Eliminated.

Page 141 COLLEGE OF MEDICINE

Application Fee. An application fee of $15.00 must accompany each application received on or after October 1, 1970 from those who are not University of Florida students.

Acceptance Deposit. Eliminated.

Page 142 SPECIAL FEES

Application Fee for Comprehensive Examination. Eliminated.

Audit Fee. A regularly-enrolled full-time student may audit courses without payment of an additional fee. All others must pay fees of $14.00 or $16.00 per credit hour depending on classification.

Graduation Fee. Eliminated.

Transcript Fee. Eliminated.

DEPOSITS

ROTC Deposit. Eliminated.

CAdA 7-8-70

THE UNIVERSITY RECORD *of the* UNIVERSITY OF FLORIDA

The Record Comprises:

The Graduate Catalog, the Undergraduate Catalog, the Schedule of Courses and various bulletins on regulations, policies and information.

These documents will be sent gratuitously to all persons who apply for them. The applicant should specifically state which document or what information is desired.

STATEMENT OF MAILING PRIVILEGE

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CENTURY TOWER

The University of Florida Century Tower was built to commemorate the University's war dead. It was constructed in 1953, thus marking the University's centennial anniversary. The tower contains a carillon that sends music throughout the campus at regular intervals during the day and plays appropriate melodies for festive and holiday occasions.

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UNIVERSITY OF FLORIDA CALENDAR, 1970-71

(CRITICAL DATES)

FALL TERM 1970

Registration	Sept. 15-18
Classes Begin	Sept. 21
Classes End	Dec. 4
Final Examinations	Dec. 7-12
Grades Due (Graduating Seniors)	Dec. 10
Commencement	Dec. 12
Grades Due (All)	Dec. 14

WINTER TERM 1971

Registration	Jan. 4
Classes Begin	Jan. 5
Classes End	March 12
Final Examinations	March 15-20
Grades Due (Graduating Seniors)	March 18
Commencement	March 20
Grades Due (All)	March 22

SPRING TERM 1971

Registration	March 26
Classes Begin	March 29
Classes End	June 4
Final Examinations	June 7-12
Grades Due (Graduating Seniors)	June 10
Commencement	June 12
Grades Due (All)	June 14

SUMMER TERM 1971

Registration	June 18
Classes Begin	June 21
Classes End	Aug. 20
Final Examinations	Aug. 23-28
Grades Due (Graduating Seniors)	Aug. 26
Commencement	Aug. 28
Grades Due (All)	Aug. 30

1970

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UNIVERSITY OF FLORIDA CALENDAR, 1970-71

FALL QUARTER

1970

March 2, Monday, 4:00 p.m.	Last day for beginning freshmen students to file application for admission for the Fall Quarter.
July 2, Thursday, 4:00 p.m.	Last day for filing application at the Office of the Registrar to change college or division for the Fall Quarter.
July 17, Friday, 4:00 p.m.	Last day for those not previously in attendance at the University of Florida (except beginning freshmen) to file application for admission for the Fall Quarter.
July 17, Friday, 4:00 p.m.	Last day for those previously in attendance at the University of Florida to apply for registration appointments for the Fall Quarter.
September 4, Friday, 4:00 p.m.	Last day for clearing admissions (including credentials and college change approval) for the Fall Quarter. Those who clear after this date will be assigned late registration appointments.
September 15-18, Tuesday-Friday	Orientation and registration (including payment of fees) according to appointments assigned. No one permitted to start registration on Friday, September 18, after 3:00 p.m.
September 18, Friday	Last day for paying fees without being subject to late fee of $25.00.
September 21, Monday	Last day for completing registration for Fall Quarter. All registration fees increased $25.-00 for full-time students (7 hours or more), $15.00 for part-time students (6 hours or less). No one permitted to start registration on Monday, September 21, after 3:00 p.m.
September 21, Monday	Classes begin.
September 23, Wednesday, 4:00	Last day for adding courses and for changing sections.
September 30, Wednesday, 4:00 p.m.	Last day for dropping courses without receiving a grade of E.
October 16, Friday, 3:00 p.m.	Last day for paying degree application fee at the Registrar's Office for a degree to be conferred at the end of the Fall Quarter.
October 16, Friday, 4:00 p.m.	Last day for removing grades of I or X received in the preceding term of attendance.
October 16, Friday, 4:00 p.m.	Last day for filing application at the Office of the Registrar to change college or division for the next quarter.
October 30-31, Friday-Saturday	Homecoming—Classes suspended.
November 20, Friday, 4:00 p.m.	Last day for withdrawing without receiving failing grades in all courses.
November 25, Wednesday, 10:00 p.m.	No examinations, class quizzes or progress tests may be given after this date and prior to the final examination period.
November 26-28, Thursday-Saturday	Thanksgiving. Classes suspended, 10:00 p.m. November 25.

November 30, Monday, 8:00 a.m.	Classes resume.
December 4, Friday	All classes end.
*December 7, Monday	Final examinations begin.
December 10, Thursday, noon	Degree candidates' grades due.
December 11, Friday, 3:00 p.m.	Report of colleges on candidates for degrees due in the Office of the Registrar.
December 12, Saturday	Commencement Convocation.
December 14, Monday, noon	All grades for Fall Quarter due in the Office of the Registrar.

UNIVERSITY OF FLORIDA CALENDAR, 1970-71

WINTER QUARTER

1970

November 20, Friday, 4:00 p.m.	Last day for those not previously in attendance at the University of Florida to file application for admission for the Winter Quarter.
November 20, Friday, 4:00 p.m.	Last day for those previously in attendance at the University of Florida to apply for registration appointments for the Winter Quarter.
December 11, Friday, 4:00 p.m.	Last day for clearing admissions (including credentials and college change approval) for the Winter Quarter. Those who clear after this date will be assigned late registration appointments.

1971

January 4, Monday	Registration according to appointments assigned (including payment of fees). No one permitted to start registration on Monday, January 4, after 3:00 p.m.
January 4, Monday	Last day for paying fees without being subject to late fee of $25.00.
January 5, Tuesday	Classes begin. Last day for completing registration for Winter Quarter. All registration fees increased $25.00 for full-time students (7 hours or more), $15.00 for part-time students (6 hours or less). No one permitted to start registration on Tuesday, January 5, after 3:00 p.m.
January 8, Friday, 4:00 p.m.	Last day for adding courses and for changing sections.
January 14, Thursday, 4:00 p.m.	Last day for dropping courses without receiving a grade of E.
January 22, Friday, 4:00 p.m.	Last day for removing grades of I or X received in the preceding term of attendance.
January 22, Friday, 4:00 p.m.	Last day for filing application at the Office of the Registrar to change college or division for the next quarter.
January 29, Friday, 3:00 p.m.	Last day for paying degree application fee at the Registrar's Office for a degree to be conferred at the end of the Winter Quarter.

* Selected comprehensive and assembly examinations begin Saturday, December 5, 1:00 p.m.

February 26, Friday, 4:00 p.m.	Last day for withdrawing without receiving failing grades in all courses.
March 5, Friday, 10:00 p.m.	No examinations, class quizzes or progress tests may be given after this date and prior to the final examination period.
March 12, Friday	All classes end.
*March 15, Monday	Final examinations begin.
March 18, Thursday, noon	Degree candidates' grades due.
March 19, Friday, 3:00 p.m.	Report of colleges on candidates for degrees due in the Office of the Registrar.
March 20, Saturday	Commencement Convocation.
March 22, Monday, noon	All grades for Winter Quarter due in the Office of the Registrar.

UNIVERSITY OF FLORIDA CALENDAR, 1970-71

SPRING QUARTER

1971

February 19, Friday, 4:00 p.m.	Last day for those not previously in attendance at the University of Florida to file application for admission for the Spring Quarter.
February 19, Friday, 4:00 p.m.	Last day for those previously in attendance at the University of Florida to apply for registration appointments for the Spring Quarter.
March 5, Friday, 4:00 p.m.	Last day for clearing admissions (including credentials and college change approval) for the Spring Quarter. Those who clear after this date will be assigned late registration appointments.
March 26, Friday	Registration according to appointments assigned (including payment of fees). No one permitted to start registration on Friday, March 26, after 3:00 p.m.
March 26, Friday	Last day for paying fees without being subject to late fee of $25.00.
March 29, Monday	Classes begin. Last day for completing registration for Spring Quarter. All registration fees increased $25.00 for full-time students (7 hours or more), $15.00 for part-time students (6 hours or less). No one permitted to start registration on Monday, March 29, after 3:00 p.m.
March 31, Wednesday, 4:00 p.m.	Last day for adding courses and for changing sections.
April 7, Wednesday, 4:00 p.m.	Last day for dropping courses without receiving a grade of E.
April 16, Friday, 4:00 p.m.	Last day for filing application at the Office of the Registrar to change college or division for the next quarter.
April 16, Friday, 4:00 p.m.	Last day for students to remove grades of I or X received in preceding term of attendance.

* Selected comprehensive and assembly examinations begin Saturday, March 13, 1:00 p.m.

April 23, Friday, 3:00 p.m.	Last day for paying degree application fee at the Registrar's Office for a degree to be conferred at the end of the Spring Quarter.
May 21, Friday, 4:00 p.m.	Last day for withdrawing without receiving failing grades in all courses.
May 28, Friday, 10:00 p.m.	No examinations, class quizzes or progress tests may be given after this date and prior to the final examination period.
June 4, Friday	All classes end.
*June 7, Monday	Final examinations begin.
June 10, Thursday, noon	Degree candidate grades due.
June 11, Friday, 3:00 p.m.	Final report of colleges on candidates for degrees due in the Office of the Registrar.
June 12, Saturday	Commencement Convocation.
June 14, Monday, noon	All grades for Spring Quarter due in the Office of the Registrar.

UNIVERSITY OF FLORIDA CALENDAR, 1970-71

SUMMER QUARTER

1971

March 1, Monday, 4:00 p.m.	Last day for beginning freshmen students to file application for admission for Summer Quarter.
April 30, Friday, 4:00 p.m.	Last day for those not previously in attendance at the University of Florida (except beginning freshmen) to file application for admission for the Summer Quarter.
April 30, Friday, 4:00 p.m.	Last day for those previously in attendance at the University of Florida to apply for registration appointments for the Summer Quarter.
May 21, Friday, 4:00 p.m.	Last day for clearing admissions (including credentials and college change approval) for the Summer Quarter. Those who clear after this date will be assigned late registration appointments.
June 18, Friday	Registration according to appointments assigned (including payment of fees). No one permitted to start registration on Friday, June 18, after 3:00 p.m.
June 18, Friday	Last day for paying fees without being subject to late fee of $25.00.
June 21, Monday	Classes begin. Last day for completing registration for Summer Quarter. All registration fees increased $25.00 for full-time students (7 hours or more), $15.00 for part-time students (6 hours or less). No one permitted to start registration on Monday, June 21, after 3:00 p.m.
June 23, Wednesday, 4:00 p.m.	Last day for adding courses and for changing sections.

* Selected comprehensive and assembly examinations begin Saturday, June 5, 1:00 p.m.

June 30, Wednesday, 4:00 p.m.	Last day for dropping courses without receiving a grade of E.
July 9, Friday, 4:00 p.m.	Last day for filing application at the Office of the Registrar to change college or division for the next quarter.
July 9, Friday, 4:00 p.m.	Last day for students to remove grades of I or X received in preceding term of attendance.
July 16, Friday, 3:00 p.m.	Last day for paying degree application fee at the Registrar's Office for a degree to be conferred at the end of the Summer Quarter.
August 6, Friday, 4:00 p.m.	Last day for withdrawing without receiving failing grades in all courses.
August 13, Friday, 10:00 p.m.	No examinations, class quizzes or progress tests may be given after this date and prior to the final examination period.
August 20, Friday	All classes end.
*August 23, Monday	Final examinations begin.
August 26, Thursday, noon	Degree candidates' grades due.
August 27, Friday, 3:00 p.m.	Report of colleges on candidates for degrees due in the Office of the Registrar.
August 28, Saturday	Commencement Convocation.
August 30, Monday, noon	All grades for Summer Quarter due in the Office of the Registrar.

* Selected comprehensive and assembly examinations begin Saturday, August 21, 1:00 p.m.

UNIVERSITY OF FLORIDA

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Acting Dean of the College of Arts and Sciences

EMANUEL SUTER, M.D.
Dean of the College of Medicine

ROBERT EUGENE UHRIG, Ph.D.
Dean of the College of Engineering

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Professor of English

JOHN PAUL O'CONNELL, Ph.D.
Assistant Professor of Chemical Engineering

ALLIE GERALD LANGFORD, Ed.D.
Associate Professor of English

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Three students to be designated
each year by the Student Senate.

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Dean of Student Development

THOMAS SANFORD BIGGS, JR., LL.B.
University Attorney

FRED HILTON CANTRELL, B.S.B.A.
Dean of University Relations and Development

JOSHUA CLIFTON DICKINSON, JR., Ph.D.
Director of the Florida State Museum

SAMUEL RAY GRAVES, B.A.
Athletic Director

GUSTAVE ADOLPHUS HARRER, Ph.D.
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RICHARD HOLMES WHITEHEAD, B.A.
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President of the University of Florida Alumni Association

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Director of the Veterans Administration Hospital

OFFICERS OF INSTRUCTION, RESEARCH, ADMINISTRATION AND EXTENSION 1969-70

(The first date indicates the first year of academic employment; the last date, the year of present rank; the asterisk represents interruption in service or leave of absence; [1] denotes Veterans Administration Hospital staff.)

Abbott, Thomas Benjamin, Ph.D. (Florida), Associate Professor of Speech and Director of Speech Pathology (1963-1968).*

Abbott, Wesley Wendell, M.Ed., Instructor, P. K. Yonge Laboratory School (1958-1962).

Abney, Howard T., Jr., M.D., (Georgia), Intern in Medicine (1968-1968).

Abraham, Claude Kurt, Ph.D. (Indiana), Associate Professor of French (1964-1964).

Abrams, Robert M., Ph.D., D.D.S., (University of Pennsylvania), Assistant Professor of Obstetrics and Gynecology (1969-1969).

Achey, Philip M., Ph.D., (Pennsylvania State University), Assistant Professor of Radiation Biophysics, Department of Radiology and Division of Biological Sciences (1967-1969).

Ackell, Edmund F., D.M.D., (Tufts University), M.D., (Western Reserve), Provost, J. Hillis Miller Health Center, Professor of Oral Surgery, Department of Surgery, and Professor of Dentistry (1966-1969).

Ackerman, Thomas J., Ph.D. (Florida State University), Assistant Professor of Education (1967-1967)

Acosta, Abelardo P., M.D., (University of Havana), Resident in Anesthesiology, (1969-1969).

Adair, Clark H., M.D., (Dalhouise University), Clinical Associate Professor in Psychiatry (1969-1969).

Adams, Calvin K., Ph.D., (Kansas State University), Assistant Professor of Ophthalmology and Psychology (1969-1969).

Adams, Earnest Dwight, Ph.D. (Duke University), Associate Professor of Physics (1962-1967).

Adams, Frank Thompson, Ed.D. (Florida), Dean for Student Development (1946-1969).

Adams, Paul L., M.D. (Columbia), Professor of Psychiatry and Pediatrics (1967), and Director, Children's Mental Health Unit (1960-1966).

Adams, William Robert, M.D., (Yale University), Professor of Pathology (1968-1968).

Aderhold, Richard M., M.D., (University of North Carolina), Resident and Trainee in Psychiatry (1968-1969).

Adkins, Charles G., M.D. (Maryland) Resident in Radiology (1967-1967).

Adkins, Warren Y., M.D., (Medical College of South Carolina), Chief Resident and Trainee in Surgery (1965-1969).

Adler, Charlotte H., M.Ed., Academic Professional I in Special Education, Department of Psychiatry (1966-1967).

Adler, William H., III, M.D., (New York State), Assistant Professor of Pathology (1966-1969).

Adlerz, Warren Clifford, Ph.D., (Oregon State), Associate Professor (Associate Entomologist), IFAS, Watermelon and Grape Investigations Laboratory (1958-1966).

Agee, O. Frank, M.D. (Louisiana State), Associate Professor of Radiology (1962-1966).

Ahmed, Esam Mahmoud, Ph.D. (Maryland), Associate Professor (Associate Food Scientist), IFAS (1964-1969).

Ahrens, Maurice Russell, Ed.D. (Denver), Professor of Education (1954-1954).

Aitken, James Bruce, Ph.D., (Florida), Assistant Professor (Assistant Horticulturist), IFAS, North Florida Experiment Station (1967-1967).

Albrecht, Ruth E., Ph.D. (Chicago), Professor of Sociology (1957-1960).

Albregts, Earl Eugene, Ph.D., (Purdue), Assistant Professor (Assistant Plant Pathologist), IFAS, Strawberry and Vegetable Field Laboratory (1967-1967).

Albrigo, Leo Gene, Ph.D., (Rutgers), Assistant Professor (Assistant Horticulturist), IFAS, Citrus Experiment Station (1968-1968).
Aldrich, Henry Carl, Ph.D. (University of Texas), Assistant Professor, Division of Biological Sciences (Botany) (1966-1966).
Aleman, Rafael A., B.I.E., Research Associate in Environmental Engineering (1969-1969).
Alexander, Alice Elizabeth, B.S. in L.S., Assistant Librarian in charge of P. K. Yonge Library Florida History (1951-1962).*
Alexander, Leon H., M.D., (Medical College of Virginia), Clinical Instructor in Surgery (1968-1968).
Alexander, Ruth Hammack, Ed.D. (Indiana), Associate Professor and Chairman Department of Physical Education for Women (1969-1969).
Alexander, Samuel Kern, Ed.D. (Indiana), Associate Professor of Education (1968-1968).
Alexander, William Hopkins, Jr., M.A.T., Research Associate, Bureau of Economic and Business Research (1967-1967).
Alexander, William Marvin, Ph.D. (Columbia), Professor of Education (1963-1963).
Alfieri, Salvatore Anthony, Jr., Ph.D. (Cornell), Associate Plant Pathologist, Division of Plant Industry (1968-1968).
Algeo, John Thomas, Ph.D. (Florida), Associate Professor of English and Assistant Dean of the Graduate School (1961-1969).
Alleger, Daniel Eugene, M.S., Associate Agricultural Economist, Agricultural Experiment Stations (1945-1945).
Allen, B. Titus, Jr., M.D., (Duke) Resident in Medicine (1968-1968).
Allen, Billy Jay, M.A., Associate Professor (Associate State 4-H Club Agent), IFAS, (1953-1968).*
Allen, Charles, Ph.D. (Brandeis) Assistant Professor of Biochemistry (1967-1967).
Allen, John Jay, Ph.D. (Wisconsin), Associate Professor of Spanish (1960-1966).
Allen, Kenneth Richard, Ph.D. (Georgia Tech), Assistant Professor of Physics (1968-1968).
Allen, Paul D., M.D., (Boston University) Resident in Surgery (1968-1968).
Allen, Robert Eugene, Ed.D. (Florida), Assistant Professor of Professional Physical Education (1968-1969).
Allen, Robert John, Jr., Ph.D. (Maryland), Assistant Professor (Assistant Agronomist), IFAS, Everglades Experiment Station (1950-1950).
Allen, T. Harrell, M.S., Interim Instructor in Journalism and Communications (1968-1968).
Allen, Virginia Frick, M.Ed., Instructor, P. K. Yonge Laboratory School (1958-1962).
Allen, William C., M.D. (Chicago), Assistant Professor in Orthopedic Surgery (1966-1968).
Alligood, Edgar Raleigh, M.Ed., Director, Department of Correspondence Study, Division of Continuing Education (1965-1965).
Allison, Henry E., Ph.D. (The New School), Associate Professor of Philosophy (1968-1968).*
Altemeir, William A., M.D., (Vanderbilt), Assistant Professor in Pediatrics and Instructor in Microbiology (1969-1969).
Altieri, Donald Paul, M.Ed., Instructor, P. K. Yonge Laboratory School (1962-1966).
Ambrose, Edna Virginia, Ed.D. (Columbia), Associate Professor of Education (1958-1958).
Ammerman, Clarence Bailey, Ph.D. (Illinois), Associate Professor of Animal Science and Associate Animal Nutritionist, Agricultural Experiment Stations (1958-1965).
Amos, Eric H., M.D., (Louisiana State), Resident in Radiology (1969-1969).
Andersen, Phillip H., M.D. (Marquette) Resident in Surgery (1967-1967).
Andersen, Thorkild W., M.D., (Copenhagen), Professor of Anesthesiology (1958-1969).
Anderson, Arvid A., Ph.D. (Texas), Assistant Professor of Marketing (1965-1965).
Anderson, Augustus E., M.D., (Tulane), Clinical Instructor in Medicine, (1966-1968).
Anderson, Carl Andrew, Ph.D. (Iowa State), Associate Professor (Associate Soils Chemist), IFAS, Citrus Experiment Station (1962-1968).
Anderson, Carl Arthur, M.B.A., Assistant Professor of Accounting (1947-1967).

Anderson, Charles Lamar, M.S.A., Assistant Professor (Assistant Agricultural Economist), IFAS (1960-1968).
Anderson, George A., M.D. (Bowman-Gray), Clinical Instructor in Medicine (1968-1968).
Anderson, James Richard, Ph.D. (Maryland), Professor of Geography (1960-1969).
Anderson, John F., Ph.D. (Florida), Assistant Professor of Biological Sciences and Zoology (1968-1969).
Anderson, Montgomery Drummond, Ph.D. (Brookings), Professor of Business Statistics and Economics (1927-1927).
Anderson, Richard James, Ph.D. (Michigan), Professor of Psychology; Associate, University Counseling Center (1943-1956).
Anderson, Richard McLemore, M.D. (Emory), Clinical Instructor in Medicine (1959-1963).
Anderson, Roland Carl, Ph.D. (Florida), Associate Professor of Aerospace Engineering (1961-1969).*
Anderson, Timothy Ernest, M.Ag., Assistant Professor (Assistant Ornamental Horticulturist), IFAS (1968-1969).
Anderson, William Henley, M.D. (University of Chicago), Clinical Associate in Ophthalmology (1968-1968).
Anderton, Robert L., M.D., (Ohio State), Intern in Medicine (1969-1969).
Andes, John O., Ed.D. (Florida), Interim Assistant Professor of Education (1968-1968).
Andrew, Edward Raymond, Sc.D. (Cambridge), Visiting Professor of Physics (1969-1969).
Andrews, John W., M.D. (Emory), Clinical Instructor in Medicine (1959-1962).
Andrews, Samuel Dalton, M.A., Interim Assistant Professor of Education, (1969-1969).
Andriola, Mary, M.D. (Duke University) Resident in Medicine (1966-1967).
Andriola, Michael J., M.D. (Duke), Resident in Pediatrics (1966-1966).
Angorn, Richard Arthur, J.D. (Florida), Assistant Professor of Pharmacy (1968-1968).
Anthony, David Salisbury, Ph.D. (Wisconsin), Associate Professor of Botany and Associate Biochemist, Agricultural Experiment Stations (1955-1955).
Appledorf, Howard, Ph.D. (Massachusetts Institute of Technology), Assistant Professor (Assistant Nutritionist), IFAS (1969-1969).
Aportela, Gladys H., M.D. (University of Havana), Resident and Trainee in Psychiatry (1968-1968).*
Aportela, Sinesio Z., M.D. (Havana) Resident in Psychiatry (1968-1968).
Apostolico, Rose M., M.D., (New Jersey College of Medicine), Research Associate in Pediatrics (1968-1969).
Apperson, Frances Eugenia, B.A. in L.S., Assistant Librarian and Chairman of Documents Department (1943-1948).
Araujo, Oscar Eduardo, Ph.D. (Purdue), Associate Professor of Pharmacy (1962-1968).
Arean, Victor M., M.D., (University of Spain), Clinical Professor of Pathology (1957-1968).
Ariet, Mario, Ph.D. (University of Florida), Associate Professor of Computing Center; Health Center Computer Coordinator; Associate Professor of Industrial and Systems Engineering (1967-1968).
Armayor, O. Kimball, Ph.D., Assistant Professor of History (1968-1968).
Armstrong, Allan LeRoy, M.D. (Virginia) Clinical Instructor in Medicine (1967-1967).
Armstrong, Marvin Cara, Jr., M.Ed., Interim Instructor of Education (1969-1969).
Armstrong, Patricia D., B.J., Research Assistant in Psychiatry (1969-1969).
Arnett, William Tobias, M.A. Arch., Professor of Architecture; Dean Emeritus, College of Architecture and Fine Arts (1933-1945).
Arney, Lawrence Hickel, M.Ed., Interim Instructor of Education (1969-1969).
Arnold, Calvin Eugene, Ph.D. (Michigan State) Asst. Professor (Asst. Horticulturist) IFAS, (1969-1969).
Arnold, Luther A., Ed.D. (Florida), Associate Professor of Education (1958-1958).
Arrington, Lewis Roberts, Ph.D. (Florida), Professor of Animal Science and Animal Nutritionist, Agricultural Experiment Stations, IFAS (1946-1967).*

Ash, James L., M.H.A., Assistant Director, Shands Teaching Hospital and Clinics and Instructor, Health and Hospital Administration, College of Health Related Professions (1969-1969).

Aspy, David Nathaniel, Ed.D., (Kentucky), Associate Professor of Education (1966-1969).

Atkins, Cedrick Donald, B.S., Professor (Chemist), IFAS, FCC, Citrus Experiment Station (1951-1951).

Atkins, Robert M., B.S., Colonel, Army Professor of Military Science.

Atkinson, Samuel C., M.D., (Tulane), Clinical Instructor in Surgery—JHEP—(1969-1969).

Attaway, John Allen, Ph.D., (Duke), Associate Professor (Associate Chemist), IFAS, FCC, Citrus Experiment Station (1959-1964).

Atwood, J. Wesley, M.D., (University of Tennessee), Resident in Radiology (1969-1969).

Auer, James Edward, M.D. (University of Iowa), Fellow in Surgery (1968-1968).

Auffenberg, Walter, Ph.D. (Florida), Curator of Herpetology and Chairman of Department of Natural Sciences, Florida State Museum; Professor Zoology (1956-1968).°

Ausness, Richard Christian, J.D., (Florida), Assistant Professor of Law (1968-1968).

Austin, James J., M.E.E., Research Associate in Center for Neurobiological Sciences and Anatomical Sciences (1968-1968).

Austin, Oliver Luther, Jr., Ph.D. (Harvard), Curator of Ornithology, Florida State Museum; Associate Professor Zoology (1957-1962).

Avila, Donald Lee, Ed.D. (Nebraska), Associate Professor of Education (1963-1967).

Aylsworth, Arthur S., M.D., (University of Pennsylvania), Clinical Fellow and Trainee in Pediatrics (1968-1969).

Ayoub, Elia M., M.D., (American University of Beirut), Professor of Pediatrics (1969-1969).

Babers, Henry J., M.D., (Cornell), Clinical Professor in Surgery (1959-1969).

Bacallao, Eloy R., D.V.M., (University of Havana), Research Associate and Manager in Primate Research Facility (1966-1968).

Backmeyer, Thomas, J.D. (Florida), Assistant Professor of Business Law (1968-1968).

Bacon, Philip, Ph.D. (Tennessee), Associate Professor of Mathematics (1965-1968).

Badman, W. Sue, Ph.D. (Florida), Research Associate in Zoology (1968-1968).

Bagnall, Larry Owen, Ph.D. (Cornell), Assistant Professor (Asst. Agricultural Engineer) IFAS, (1969-1969).

Bailey, John Pelham, Jr., Ph.D. (Florida), Interim Assistant Professor of Education (1969-1969).

Bailey, Robert Leo, M.S.E., Assistant Professor of Electrical Engineering (1960-1967).

Bailey, Thomas Lee, III, Ph.D. (Chicago), Professor of Physics and Electrical Engineering (1953-1963).°

Baird, Carl Direlle, M.S.E. (Florida), Research Associate, Agricultural Engineering, IFAS, (1969-1969).

Baker, Frank Sloan, Jr., M.S.A., Professor (Animal Husbandman), IFAS, North Florida Experiment Station (1945-1963).

Baker, Melvin Charles, Ed.D. (Illinois), Professor of Education and Assistant Dean, College of Education (1952-1963).

Baker, Roy M., M.D., (Emory), Clinical Assistant Professor in Pediatrics (1969-1969).

Baldwin, David Hale, Ph.D. (Florida), Assistant Professor of Metallurgical and Materials Engineering (1966-1966).°

Baldwin, Fletcher Nathaniel, Jr., LL.M., Professor of Law (1962-1968).°

Baldwin, Lloyd Barrington, M.Ag., Assistant Professor (Asst. Agricultural Engineer) IFAS, (1967-1967).

Balerdi, Carlos, Francisco, Ph.D., (Louisana State), Assistant Professor (Assistant Horticulturist), IFAS, Watermelon and Grape Investigations Laboratory (1966-1966).

Ballard, Stanley Sumner, Ph.D. (California), Professor of Physics; Chairman of De-

partment of Physics and Astronomy; Director of Division of Physical and Mathematical Sciences (1958-1968).

Bane, Robert King, Ed.D., (Florida), Interim Assistant Professor of Education (1968-1969).

Banks, Samuel Alston, B.D., Chaplain of the Health Center and Assistant Professor of Psychiatry and Religion (1962-1962).

Baranowski, Richard Matthew, Ph.D., (Connecticut), Professor (Entomologist), IFAS, Sub-Tropical Experiment Station (1956-1967).

Barbati, Johanna Miller, M.A., Assistant Professor of Occupational Therapy (1967-1967).

Barclay, Jack K., Ph.D. (University of Michigan), Postdoctoral Fellow in Physiology (1969-1969).

Bard, David S., M.D. (Columbia College), Assistant Professor of Obstetrics and Gynecology (1970-1970).

Barger, Benjamin, Ph.D., (Duke), Director, The Student Mental Health Project, Clinical Psychologist in Student Health, Professor and Lecturer in Psychology (1959-1960).

Baringer, William Eldon, Ph.D. (Illinois), Professor of Social Sciences (1947-1949).

Barnard, George W., M.D. (North Carolina), Associate Professor of Psychiatry (1963-1968).

Barnett, John William, Ph.D. (Auburn) Assistant Professor (Assistant Entomologist), IFAS. (1969-1969).

Barron, Donald H., Ph.D., (Yale University), Professor in Obstetrics and Gynecology (1969-1969).

Barron, Rodger William, B.A., Instructor (Assistant in Chemistry), IFAS, FCC, Citrus Experiment Station (1956-1956).

Barrow, Mark V., M.D., (University of Florida), Assistant Professor in Medicine (1966-1969).*

Bartlett, Beverly J.F., M.S., Research Assistant (1969-1969).

Bartlett, George Robert, Ph.D. (Chicago), Professor of Philosophy (1947-1947).

Bartlett, John W., M.D., (University of Florida), Resident in Pediatrics (1969-1969).

Bartlett, Thomas George, B.S., Head Basketball Coach (1966-1966).

Bartley, Ernest R., Ph.D. (California), Professor of Political Science (1949-1955).*

Bartley, Thomas D., M.D. (Colorado), Associate Professor of Surgery and Assistant Dean for Postgraduate Education (1961-1967).

Barton, Maurice Arthur, M.D. (Boston University) Clinical Associate of Psychiatry (1968-1968).

Barton, Pauline Hinton, Ed.D., Associate Professor, College of Nursing (1959-1965).*

Bartscht, Charla Jean, M.S., Assistant Professor (Extension Home Management & Family Economics Specialist), IFAS, (1968-1968).

Bartz, Jerry A. Ph.D. (Wisconsin) Assistant Professor (Assistant Plant Pathologist) Institute of Food and Agricultural Sciences (1969-1969).

Basdekian, Edward Albert, B.S., B.S.P., Assistant Director, Pharmaceutical Services, Shands Teaching Hospital and Clinics (1966-1966).

Baskin, Alma Dean, B.A., Research Assistant in Medicine (1967-1967).

Baskin, Jerry Mack, Ph.D. (Vanderbilt), Interim Research Associate, Agricultural Experiment Station (1967-1967).

Bates, James Wesley, M.S.L.S., Assistant Librarian, Reference and Bibliography (1966-1966)

Bates, Robert Parker, Ph.D. (M.I.T.), Assistant Professor (Assistant Food Scientist), IFAS (1967-1967).

Bates, Roger Gordon, Ph.D. (Duke), Professor of Chemistry (1969-1969).

Bates, Stanley Raymond, Ph. D. (Florida), Assistant in Research in Metallurgical and Materials Engineering (1969-1969).

Batey, Robert L., M.D., (University of Florida), Chief Resident and Instructor in Medicine (1966-1969).

Battiste, Merle Andrew, Ph.D. (Columbia), Associate Professor of Chemistry (1961-1966).

Bauer, David Woodfin, B.S., Major, U. S. Army, Assistant Professor of Military Science (1967-1967).

Baumer, G. Harry, III, B.S.B.A., Director of Purchasing (1965-1966).

Bausher, Judith C., M.S., Research Assistant in Pathology (1969-1969).
Baxter, John Franklin, Ph.D. (Johns Hopkins); D.Sc. (Honorary) (Bethany); Professor of Chemistry (1952-1952).*
Baxter, Metta Lucille, M.A., Assistant Professor of Physical Therapy V.A.[1] (1967-1967).
Bazer, Fuller Warren, Ph.D. (North Carolina State), Assistant Animal Physiologist, Agricultural Experiment Station (1968-1968).
Beach, Robert O., Director and Assistant Professor of Medical Illustrations (1956-1962).
Beard, Percy Morris, M.S., Associate Professor of Professional Physical Education; General Manager; Assistant Athletic Director, Division of Intercollegiate Athletics (1936-1960).
Beardsley, Daniel Waldo, Ph.D., (Illinois), Professor (Animal Nutritionist) and Head, IFAS, Everglades Experiment Station (1949-1968).
Beaton, William R., Ph.D. (Ohio State), Professor of Real Estate and Urban Land Studies (1967-1967).
Beatty, Patricia Lee, M.A., Instructor in Speech (1967-1969).
Beauvais, June T., A.B., Instructor, College of Nursing (1968-1968).
Becht, Paul Anthony, M.Ed., Interim Teacher, P. K. Yonge Laboratory School (1968-1968).
Becker, Charles Henry, Ph.D. (Florida), Professor of Pharmacy and Chairman of Department (1947-1961).
Beckham, James A., M.A., Assistant to the President (1969-1969).
Beckham, Joseph Carl, J.D. (Florida), Interim Instructor in Social Sciences (1969-1969).
Becknell, Jerry Lois, B.S., Captain, U.S. Army, Assistant Professor of Military Science (1969-1969).
Beckner, John, B.SA., Research Associate in Botany, Agricultural Experiment Stations, IFAS (1965-1965).
Beckwith, Stephen Lyon, Ph.D. (Michigan), Associate Professor of Wildlife Management and Associate Forester, Agricultural Experiment Stations (1948-1955).
Bednarek, Alexander Robert, Ph.D. (Buffalo), Professor of Mathematics and Chairman of Department (1963-1969).
Beeman, Carl Edgar, Ed.D. (Cornell), Assistant Professor of Education (1967-1967).
Beer, Hermann, M.D. (Basle), Director of Clinical Microbiology Laboratories and Assistant Professor of Microbiology (1966-1966).
Beggs, John H., M.D. (Minnesota), Clinical Assistant Professor in Surgery (1963-1967).
Beirne, Raymond Michael, M.A., Associate Professor of English (1954-1969).
Beistle, Gerald Michael, M.A., Instructor in Humanities and English (1964-1966).*
Belkin, Daniel A., Ph.D. (Florida), Assistant Professor of Physiology (1961-1966).
Bell, Bruce H., D.M.D. (Tufts), Professor and Chairman, Department of General Dentistry, College of Dentistry, (1968-1968).
Bell, Phillip Adrian, M.E., Research Associate in Industrial and Systems Engineering (1969-1969).
Bell, William R., M.D. (Duke), Clinical Associate Professor in Pediatrics (1969-1969).
Beller, Ronald E., M.B.A., Research Associate, Bureau of Economic and Business Research (1966-1966).
Bellino, Robert J., M.D. (Florida), Resident in Psychiatry (1967-1967).
Beltranena, Humberto J., M.D. (Havana University), Resident in Anesthesiology (1969-1969).
Bengtson, George, Ph.D. (Yale), Associate Forester, Tennessee Valley Authority (1968-1968).
Bennett, Gerald Thomas, J.D. (Florida), Interim Assistant Professor of Law (1968-1968).
Bennett, Larry Everett, Ph.D. (Stanford), Assistant Professor of Chemistry (1966-1966).
Bennett, Robert Broadhurst, Ph.D. (Purdue), Professor of Chemical Engineering (1953-1953).

Bennett, Silas Fleming, B.S.L.S., Assistant Director of Libraries (1964-1969).
Benninger, Lawrence J., Ph.D. (Missouri), Professor of Accounting (1956-1959).
Benson, Lester Leon, B.S., Assistant Professor (Assistant Meteorologist), IFAS, USWB, Weather Forecasting Service (1956-1956).
Bentley, George Robert, Ph.D. (Wisconsin), Professor of Social Sciences and Comprehensive Logic; Assistant Dean, University College (1938-1965).
Benz, William Patrick, M.P.H., Assistant Professor of Physical Education (1951-1955).
Berardo, Felix M., Ph.D. (Florida State), Associate Professor of Sociology (1969-1969).
Bercaw, Beauregard L., M.D., (University of Virginia), Clinical Fellow in Medicine (1967-1969).
Berger, Richard Donald, Ph.D., (Wisconsin), Assistant Professor (Assistant Plant Pathologist), IFAS, Everglades Experiment Station (1967-1967).
Bernard, Donald Harry, Ed.D., (Columbia) Assistant Professor of Education (1969-1969).
Berner, Lewis, Ph.D. (Florida), Professor of Biological Sciences and Chairman of Department; Professor of Zoology and Entomology; Curator of Natural Sciences, Florida State Museum (1946-1959).
Bernier, Gilles R., M.D., (University of Montreal), Clinical Fellow in Ophthalmology (1969-1969).
Bernstein, Jerald J., Ph.D. (Michigan), Assistant Professor of Anatomical Sciences (1965-1965).
Bernstein, Mary Elizabeth, Research Assistant in Ophthalmology (1967-1968).
Bernstein, Stuart P., M.D., Clinical Associate in Psychiatry (1968-1968).
Berry, Waldron, M.B.A., Interim Instructor in Management (1969-1969).
Bertrand, Joseph E., Ph.D., (Louisiana State), Associate Professor (Associate Animal Scientist), IFAS, West Florida Experiment Station (1966-1966).
Bessette, Leo, B.B.A., Financial Aid Counselor, (1953-1961).
Best, John Hardin, Ph.D., (North Carolina) Professor of Education (1969-1969).
Bethea, Sally Brook, M.L.S., Assistant Librarian, Catalog (1959-1966).
Bevis, Herbert Anderson, Ph.D. (Florida), Associate Professor of Environmental Engineering (1961-1964).
Beyette, Thomas Kent, Ph.D. (Texas), Assistant Professor of English (1969-1969).
Bieber, Jerome B., Ph.D. (S.U.N.Y. at Buffalo), Assistant Professor of Physical Sciences and History (1969-1969).
Bigelow, Gordon Ellsworth, Ph.D. (Johns Hopkins), Professor of English (1951-1967).*
Biggs, Robert Hilton, Ph.D. (Purdue) Professor (Biochemist) IFAS, (1957-1969).
Biggs, Thomas S., Jr., L.L.B., University Attorney (1969-1969).
Billen, Daniel, Ph.D. (University of Tennessee), Research Professor of Radiation Biology (1966-1966).
Billings, Charles Moore, M.A., Interim Instructor in English (1969-1969).
Bingham, N. Eldred, Ph.D. (Columbia), Professor of Education (1950-1950).*
Bishop, Bernays, M.P.H., Assistant Professor in Physical Education and Golf Coach (1962-1967).
Bissell, Joseph Dickinson, D.D.S. (Temple), Research Associate in Electrical Engineering (1968-1968).
Bitzer, E. West, M.D., (Virginia), Clinical Assistant Professor in Surgery (1966-1969).
Black, Kenneth LeRoy, LL.B., Professor of Law (1949-1952).
Blackburn, Robert D., M.S., Associate Professor (Associate Agronomist), IFAS, USDA, Plantation Field Laboratory (1960-1967).
Blair, James Glen, B.S., Associate Professor (Associate Mechanical Engineer), IFAS, FCC, Citrus Experiment Station (1962-1962).
Blake, Robert George, Ph.D. (Florida), Associate Professor of Mathematics (1943-1955).
Blakey, Arch Fredric, Ph.D. (Florida State), Assistant Professor of Social Sciences (1969-1969).
Blanchard, Frank Nelson, Ph.D. (Michigan), Associate Professor of Geology (1958-1969).
Bland, Kirby I., M.D., (Alabama), Resident in Surgery (1968-1969).

Blank, Henry S., M.D. (George Washington), J.D. (Florida), Interim Associate Professor of Law (1969-1969).
Blanton, Franklin S., Ph.D. (Cornell), Professor of Entomology (1956-1956).
Blazquez, Carlos H., Ph.D., (Florida), Assistant Professor (Assistant Plant Pathologist), IFAS, South Florida Field Laboratory (1966-1966).
Blechner, Jack Norman, M.D. (Yale University) Associate Professor of Obstetrics and Gynecology (1965-1967).*
Bleiweis, Arnold S., Ph.D. (Pennsylvania State University), Assistant Professor (Asst. Bacteriologist), IFAS (1967-1967).
Block, Albert C., Ed.D. (Miami), Assistant Professor of Education (1966-1967).
Block, Gertrude Hecht, M.A., Instructor in English (1967-1967).
Block, Seymour Stanton, Ph.D. (Pennsylvania State), Professor of Chemical Engineering (1944-1966).
Blodgett, Ralph Hamilton, Ph.D. (Pennsylvania), Professor of Economics (1950-1950).
Blome, Rene Celeste, B.A., Interim Teacher, P. K. Yonge Laboratory School (1968-1968).
Blood, Arthur M., M.D. (Emory), Clinical Associate in Psychiatry (1968-1968).
Bloodworth, Bertha Ernestine, Ph.D. (Florida), Assistant Professor of English (1961-1961).
Bloodworth, Thomas H., M.A., Assistant Director of Personnel (1963-1965).
Bloom, Gerald Edward, M.D. (Maryland) Assistant Professor of Pediatrics (1968-1968).
Blue, Richard Arthur, Ph.D. (Wisconsin), Assistant Professor of Physics (1966-1966).
Blue, William Guard, Ph.D. (Missouri), Biochemist, Agricultural Experiment Stations (1950-1963).
Blume, Robert Allen, Ph.D., (Michigan), Assistant Professor of Education, (1969-1969).
Blythe, Rudolph H., Pharm. D. (Columbia), Associate Professor, Pharmacy (1967-1967).
Boardman, Gerald Ray, Ph.D., (Wisconsin), Assistant Professor of Education (1969-1969).
Boatright, Ronald O., M.B.A., Interim Instructor in Real Estate and Urban Land Studies (1968-1968).
Bobbin, Richard P., Ph.D., (Tulane), Postdoctoral Fellow in Surgery (1969-1969).
Bock, E. Wilbur, Ph.D. (Iowa State), Assistant Professor of Sociology (1963-1964).
Bodine, Willis Ramsey, Jr., M.M., Associate Professor of Music (1959-1967).
Boe, Warren, Ph.D., (Purdue), Assistant Professor of Management (1969-1969).
Bolch, William Emmett, Ph.D. (California), Assistant Professor of Environmental Engineering (1966-1966).
Bolduc, Joseph Elroy, Ed.D., (Tennessee), Assistant Professor of Education (1969-1969).
Bolles, Robert Stephen, Ed.D. (Columbia), Dean, College of Architecture and Fine Arts; Professor of Music (1948-1966).
Bonneville, Douglas A., Ph.D. (Ohio State), Associate Professor of French (1963-1968).
Boone, William Thomas, M.Ed., Instructor of Physical Education (1969-1969).
Bordeaux, Francis Marion, Jr., B.S., Research Associate in Bacteriology (1966-1966).
Borders, Huey Ingles, Ph.D., (Minnesota), Professor (Plant Pathologist), IFAS, Plantation Field Laboratory (1944-1968).*
Boruchow, Irwin B., M.D., (Georgetown University), Cinical Fellow in Surgery (1969-1969).
Bose, Joerg, M.D. (Freie Universitat, Berlin) Resident, Trainee and Assistant in Psychiatry (1967-1967).
Bostwick, James Burdette, B.A., Coordinator of Special Programs, Division of Continuing Education (1969-1969).
Boutwell, Wallace Kenneth, Jr., Ph.D. (North Carolina State) Assistant Dean of Academic Affairs and Associate Professor of Agricultural Economics, IFAS (1968-1969).
Bowden, Joseph Allen, Ph.D. (North Dakota) Research Associate in Biochemistry (1968-1968).

Bowers, Robert Hood, Jr., Ph.D. (Yale), Professor of English and Curator of Rare Books (1946-1955).
Bowles, Richard William, M.S., Professor of Music (1958-1967).
Bowman, Earl K., B.S., Associate Industrial Engineer, USDA, Agricultural Experiment Stations (1957-1957).
Bowman, John F., D.M.D. (Tufts), Associate Professor and Chairman, Division of Complete Denture Prosthodontics, College of Dentistry, (1969-1969).
Boyd, Charles W., M.D., Clinical Associate in Ophthalmology (1968-1968).
Boyd, Clifford Allen, Ed.D. (Boston), Acting Dean, College of Physical Education and Health and Professor of Professional Physical Education (1950-1969).
Boyd, Frederick Tilghman, Ph.D. (Wisconsin), Professor of Agronomy, IFAS (1938-1959).*
Boyd, Robert S., B.A., Interim Instructor in Journalism and Communications (1968-1968).
Boykin, William Henry, Jr., Ph.D. (Stanford), Assistant Professor of Engineering Science and Mechanics; Assistant Professor of Electrical Engineering (1967-1967).
Bradbury, Robert Wesley, Ph.D. (Michigan), Professor of Economics College of Business Administration and Interim Agricultural Economist, Agricultural Experiment Station, IFAS (1950-1952).
Bradley, Richard Eugene, D.V.M., Ph.D. (Georgia), Associate Professor (Assistant Parasitologist), Institute of Food and Agricultural Sciences (1965-1969).
Bradshaw, Carol E., Ed.D. (Florida), Associate Professor and Assistant Dean for Nursing Practice, College of Nursing (1960-1969).*
Bradshaw, James Philip, M.A., M.S. in L.S., Associate Professor of English (1946-1959).
Brady, Louis P., M.D., (Emory), Clinical Assistant Professor in Surgery (1961-1969).
Brady, Marna Venable, Ed.D. (Columbia), Associate Professor of Comprehensive Logic, Adviser (1948-1966).
Brady, Patrick G., M.D., (New Jersey College of Medicine), Resident in Medicine (1968-1969).
Branch, Dan Paulk, M.S., Associate Professor of Architecture (1961-1967).*
Branch, John T., Jr., M.B.A., Coordinator of Special Programs, Division of Continuing Education (1958-1966).
Branch, Sonya M., M.S., Assistant Librarian, Architecture and Fine Arts Library (1966-1966).
Brändas, Erkki Juhani, Ph.D. (Uppsala), Assistant Professor of Chemistry (1969-1969).
Brandt, John Frederick, Ph.D. (Iowa), Research Assistant Professor of Speech (1965-1965).
Brantley, Richard Estes, Ph.D. (Princeton), Assistant Professor of English (1969-1969).
Brashear, Billy, M.D. (Louisville), Clinical Instructor in Medicine (1967-1967).
Brask, Willard John Gustave, M.M., Associate Professor of Music (1963-1968).
Braswell, Robert N., Ph.D. (Oklahoma State), Professor of Industrial and Systems Engineering and Chairman of the Department (1964-1966).
Brechner, Beverly Lorraine, Ph.D. (Louisiana State), Assistant Professor of Mathematics (1968-1968).
Breivogel, William Francis, Ed.D. (Rutgers), Assistant Professor of Education (1966-1966).
Breland, Herman Leroy, Ph.D. (Illinois), Associate Soils Chemist, Agricultural Experiment Stations, IFAS (1952-1966).
Brendemuehl, Raymond Hugo, Ph.D. (Iowa State), Associate Forester, U.S. Dept. of Agriculture.
Brey, Wallace Siegfried, Jr., Ph.D. (Pennsylvania), Professor of Chemistry (1952-1964).
Brezonik, Patrick Lee, Ph.D. (Wisconsin), Assistant Professor of Water Chemistry, Department of Environmental Engineering (1966-1966).
Bridges, Charles Martin, Jr., Ed.D. (Tennessee), Associate Professor, College of Education (1966-1966).
Brill, Thomas M., M.D., (University of Michigan), Clinical Assistant Professor of Pediatrics (1959-1969).*

Brimhall, Rodney L., M.D., (University of Florida), Clinical Fellow in Medicine (1968-1969).
Brinson, Caryl, B.S., Interim Instructor of Speech (1969-1969).
Bristor, John D., M.S., Associate Professor ot Building Construction (1963-1967).
Brode, Peter E., M.D., (Hamburg), Research Fellow in Pediatrics (1969-1969).
Brodersen, Arthur James, Ph.D. (California), Associate Professor of Electrical Engineering (1966-1969).
Brodkorb, Pierce, Ph.D. (Michigan), Professor of Biological Sciences and Zoology (1946-1955).
Brodnax, Henry Doss, Jr., M.S., Assistant in Agricultural Economics, USDA., IFAS (1966-1966).
Brogdon, James Edison, M.Agr., Entomologist, Agricultural Extension Service (1955-1966).
Brolmann, Johannes Bernardus, Ph.D., (Florida), Assistant Professor (Assistant Legume Breeder), IFAS, Indian River Field Laboratory (1969-1969).
Bronfman, Robert A., M.D., (New Jersey College of Medicine), Resident and Trainee in Surgery (1969-1969).
Brookbank, John Warren, Ph.D. (California Institute of Technology), Professor of Zoology (1955-1968).
Brooke, Donald Lloyd, Ph.D. (Illinois), Agricultural Economist, Agricultural Experiment Stations, IFAS (1946-1962).
Brookeman, Valerie Anne, M.D. (U. of St. Andrews) Visiting Instructor in Radiology (1968-1968).
Brooker, John Raymond, M.S.A., Assistant in Agricultural Economics, USDA, IFAS (1969-1969).
Brooker, Marvin A., Ph.D. (Cornell), Professor (Head, Academic Development Program), IFAS (1927-1956).
Brooks, Harold Kelly, Ph.D. (Harvard), Associate Professor of Geology (1956-1962).
Brooks, James Keith, Ph.D. (Ohio State), Associate Professor of Mathematics (1967-1969).
Brooks, Robert Franklin, Ph.D., (Wisconsin), Associate Professor (Associate Entomologist), IFAS, Citrus Experiment Station (1960-1966).
Brooks, Thurston L., Jr., B.S., Interim Assistant in Agricultural Economics, Agricultural Experiment Stations (1963-1963).
Brown, Bob Burton, Ph.D. (Wisconsin), Professor of Education (1965-1968).
Brown, David C., M.D. (Florida) Resident and Trainee in Ophthalmology (1966-1967).
Brown, Donald Edward, M.Ed., Assistant Coach (1962-1962).
Brown, Frieda S., Ph.D. (Washington University), Associate Professor of French (1967-1967).
Brown, George Eldon, Ph.D., (Minnesota), Assistant Professor (Assistant Plant Pathologist), IFAS, FCC, Citrus Experiment Station (1965-1965).
Brown, Henry Clay, Ph.D. (Florida), Professor of Chemical Engineering and Professor of Chemistry (1952-1956).
Brown, Jean Woodley, M.Ed., Teacher, P.K. Yonge Laboratory School (1967-1968).
Brown, Joseph C., M.D. (Loma Linda University) Resident in Anesthesiology (1968-1968).
Brown, Judith May, M.A., Research Assistant in Psychiatry (1967-1967).
Brown, Polly Upson, M.A., Assistant Professor of Occupational Therapy (1968-1968).
Brown, Sharon Lee, M.Ed., Teacher, P. K. Yonge Laboratory School (1966-1966).
Brown, William S., Ph.D. (State University of New York), Postdoctoral Fellow in Speech (1968-1968).
Brown, Woodrow Wilson, M.Ag., Professor (State 4-H Club Leader), IFAS, (1943-1950).
Browning, Charles Benton, Ph.D. (Kansas State), Professor of Dairy Science and Dean for Resident Instruction, IFAS (1966-1969).
Broyles, Arthur Augustus, Ph.D. (Yale), Professor of Physics and Physical Sciences (1949-1961).*
Bruce, William Alvin, Ph.D., (Ohio State), Research Associate, Citrus Experiment Station, IFAS (1969-1969).
Bruno, Frederick P., M.S., Instructor in Radiation Physics (1965-1965).
Bruns, Roy E., Ph.D. (Oklahoma State University), Interim Assistant Professor of Chemistry (1968-1968).

Brunskill, Ronald William, Ph.D., (Univ. of Manchester, England), Visiting Assistant Professor of Architecture (1969).
Bryan, Herbert Harris, Ph.D. (Cornell), Assistant Professor (Assistant Horticulturist), IFAS, Sub-Tropical Experiment Station (1964-1964).
Bryan, Patricia Fredericks, M.Ed., Interim Instructor in Humanities (1967-1967).*
Bryan, Robert Armistead, Ph.D. (Kentucky), Professor of English; Assistant Dean of the Graduate School (1957-1968).
Bryant, David Raymond, Jr., A.B., Administrative Assistant III, Institute of Food and Agricultural Sciences (1958-1958).
Bryant, Michael, J.D., (Florida), Interim Assistant Professor of Business Law (1969-1969).
Buchanan, David Wayne, Ph.D. (Rutgers) Asst. Professor (Asst. Horticulturist) IFAS, (1967-1967).
Bucher, John F., D.D.S. (Pittsburgh), Associate Professor and Chairman, Division of Endodontics, College of Dentistry (1969-1969).
Buchman, Ellen U., B.S., Research Assistant in Surgery (1969-1969).
Buck, Douglas Lloyd, B.S., Assistant Communications Specialist, Agricultural Extension Service (1965-1965).
Bullard, Barclay Stith, M.L.S., Assistant Librarian, Reference and Bibliography (1968-1968).
Bullard, William Rotch, Jr., Ph.D. (Harvard), Chairman of Department of Social Sciences and Associate Curator, Florida State Museum (1969-1969).
Bullen, Ripley Pierce, M.E., Curator of Anthropology, Florida State Museum (1952-1952).
Bullock, Lyndal Marvin, Ed.D. (Kansas), Interim Assistant Professor of Education (1969-1969).
Bullock, Robert Crossly, Ph.D., (Connecticut), Associate Professor (Associate Entomologist), IFAS, Indian River Field Laboratory (1961-1961).
Bullock, Thomas Edward, Jr., Ph.D. (Stanford), Associate Professor of Electrical Engineering; Associate Professor of Nuclear Engineering Sciences (1966-1969).
Bunting, Donald Charles, M.S., Assistant Professor of Physical Sciences (1948-1948).
Burchardt, Hans, M.S., Instructor in Surgery (1968-1969).
Burdine, Howard William, Ph.D., (Cornell), Professor (Soils Chemist), IFAS, Everglades Experiment Station (1955-1968).
Burgis, Donald Stafford, M.S.A., Associate Professor (Associate Horticulturist) IFAS, Gulf Coast Experiment Station (1946-1969).
Burke, Walter Leonard, Visiting Lecturer of Accounting (1968-1968).
Burleson, W. Rowell, M.D (North Carolina) Resident in Surgery (1967-1967).
Burnes, James Alton, D.Phil. (Oxford), Professor of Law (1968-1968).
Burnett, Harry Coppin, M.S., Associate Plant Pathologist, Div. of Plant Industry (1968-1968).
Burns, Augustus Merrimon, III, Ph.D. (North Carolina), Assistant Professor of Social Sciences and History (1967-1967).
Burns, James Franklin, Ph.D. (Massachusetts Institute of Technology), Associate Professor of Industrial and Systems Engineering (1966-1969).
Burns, John Joseph, Jr., Ph.D. (University of Colorado), Associate Professor of Engineering Science and Mechanics (1967-1967).
Burns, William Calvin, M.S., Assistant Professor (Assistant Animal Husbandman) and Head, IFAS, USDA, Brooksville Beef Cattle Research Station (1957-1957).
Burt, Evert Oakley, Ph.D., (Ohio State), Professor (Ornamental Horticulturist), IFAS, Plantation Field Laboratory (1962-1969).
Burton, Claude C., M.D., (Maryland), Clinical Professor in Surgery (1964-1969).
Busby, Joe Neil, Ph.D. (Florida), Professor (Associate Dean for Extension), IFAS, (1947-1965)*.
Busby, Walter A., Ed.D. (Michigan State University), Assistant Professor of Education (1968-1968).
Bushnell, David, Ph.D. (Harvard), Professor of History (1963-1968).
Busk, Gail Susan, M.Ed., (Florida), Instructor of Architecture (1968-1968).
Buslig, Bela Stephen, M.S., Research Associate, IFAS, FCC, Citrus Experiment Station (1967-1967).
Busot, Jesus Carlos, M.S., Research Assistant in Chemical Engineering (1967-1967).
Bussey, Joseph G., Jr., M.D., (Emory), Chief Resident in Surgery (1966-1969).

Bustamante, Rodolfo E., M.D. (Havana), Resident in Pathology (1967-1967).
Butler, Arthur, Ph.D., (Florida), Instructor in Management (1969-1969).
Butler, George Bergen, Ph.D. (North Carolina), Professor of Chemistry and Research Professor (1946-1957).
Butler, Glenn A., Ed.D. (Oklahoma State), Associate Professor of Journalism and Communications (1966-1969).
Butler, Jerry Frank, Ph.D. (Cornell), Assistant Entomologist, Agricultural Experiment Station (1968-1968).
Butler, Sherman Linville, M.L.S., Assistant Librarian, Reference and Bibliography (1968-1968).
Butscher, William, M.D., (Jefferson Medical College), Clinical Associate Professor of Pediatrics (1964-1969).
Butt, Arnold Frederick, M.A., Professor of Architecture and Chairman of Department of Architecture (1967-1969).
Butterworth, James Donald, Ph.D. (Northwestern), Professor of Marketing and Chairman of Department of Marketing (1955-1958).
Button, Robert Adams, M.Litt., Director, University Personnel Relations (1963-1965).
Byron, Kenneth Hugh, Ph.D. (Florida), Assistant Professor of English, Adviser (1961-1962).
Byvoet, Paul, M.D., Ph.D. (University of Leyden, The Netherlands), Associate Professor, Division of Biological Sciences (1961-1967).
Bzoch, Kenneth Rudolph, Ph.D. (Northwestern), Chairman and Professor, Department of Communicative Disorders; Professor of Speech, (1960-1965).
Cade, James R., M.D., (Southwestern), Associate Professor and Chief of Renal Medicine (1961-1965).
Cage, Bobby Nyle, Ph.D. (Iowa State University), Assistant Professor of Education (1968-1968).
Cahoon, Stuart Newton, M.D. (Temple University) Associate Professor of Psychiatry and University Psychiatrist (1968-1968).
Cake, Edwin Wood, Ph.D. (Cornell), Economist, Farm Management, Agricultural Extension Service (1952-1952).
Calaway, Wilson Thayer, M.S., Assistant Professor of Entomology (1946-1963).
Caldwell, David Keller, Ph.D. (Florida), Interim Associate Professor of Speech (1969-1969).
Caldwell, Robert Edward, Ph.D. (Purdue), Professor of Soils and Soil Chemist, Agricultural Experiment Station (1941-1968).
Caldwell, Wofford T., M.S.Ed., Associate Professor of Building Construction (1957-1965).
Calhoun, Eunice Zipperer, M.Ed., Instructor, P. K. Yonge Laboratory School (1944-1952).
Callahan, Philip S., Ph.D. (Kansas State), Professor of Entomology, USDA Insect Attractant Behavior Research Lab. (1969-1969).
Calloway, Pauline Frances, Ed.D. (North Carolina State), Associate Professor (Extension Home Economist, Program Development), IFAS, (1968-1968).
Calvert, David Victor, Ph.D., (Iowa State), Associate Professor (Associate Soil Chemist), IFAS, Indian River Field Laboratory (1961-1968).
Camp, Susan Christian, M.S., Associate Professor, (Associate Extension Nutritionist), IFAS, (1955-1964).
Campbell, Carl Walter, Ph.D., (Purdue), Associate Professor, (Associate Horticulturist), IFAS, Sub-Tropical Experiment Station (1960-1966).*
Campbell, Donald R., M.D., (University of Florida), Resident in Psychiatry (1969-1969).
Campbell, Howard W., Ph.D. (California) Postdoctoral Fellow, Center for Neurobiological Sciences (1968-1968).
Campbell, Hugh Daniel, Ph.D. (University of British Columbia), Assistant Professor of Nuclear Engineering Sciences (1968-1968).
Campbell, Lindsey D., M.D., Clinical Associate in Psychiatry (1968-1968).
Campbell, Thomas W., M.D., (Vanderbilt), Resident in Medicine (1968-1969).
Canepa, Paul Charles, M.S., Assistant in Research, Physics (1964-1969).
Canney, Carolyn J., A.B., (Mount Holyoke College), Instructor Computing Center (1968-1969).

Cantrell, Fred H., B.S.B.A. (Florida), Dean University Relations and Development, (1968-1968).
Capehart, Barney L., Ph.D. (University of Oklahoma), Assistant Professor of Industrial and Systems Engineering (1968-1968).
Capella, Joseph, Assistant in Ophthalmology (1967-1968).
Caranasos, George J., M.D. (Johns Hopkins), Assistant Professor in Medicine (1965-1968).
Cardeilhac, Paul Thiers, D.V.M. (Texas A&M), Ph.D. (Pennsylvania), Associate Professor (Associate Pharmacologist), Institute of Food and Agricultural Sciences (1968-1968).
Carey, Madelaine M., Ph.D. (University of California), Assistant Professor of Psychology (1965-1965).
Carithers, Hugh A., M.D., (Emory) Clinical Associate Professor (JHEP) in Pediatrics (1968-1968).
Carlisle, Victor Walter, Ph.D. (Florida), Associate Professor of Soils and Associate Chemist, Agricultural Experiment Stations (1962-1967).*
Carlson, Norman Gilbert, B.S., Head, Sports Publicity, Assistant Athletic Director (1963-1963).
Carnell, Corbin Scott, Ph.D. (Florida), Associate Professor of English, Adviser (1958-1968).
Carnes, James Jerome, A.B., Head Track Coach (1964-1964).
Carpenter, James Woodford, Ph.D. (Florida), Associate Professor (Associate Meat Scientist), IFAS (1957-1967).*
Carr, Archie Fairly, Ph.D. (Florida), Graduate Research Professor of Zoology and Curator of Zoological Sciences, Florida State Museum (1937-1959).
Carr, Glenna Dodson, Ed.D. (Florida), Assistant Professor of Education (1952-1959).
Carr, John Edward, Purchasing Officer (1966-1966).
Carr, Thomas Deaderick, Ph.D. (Florida), Professor of Physics and Astronomy (1958-1966).
Carr, William E. S., Ph.D. (Duke), Assistant Professor of Zoology (1965-1966).
Carrera, Frank, M.D. (Emory), Assistant Professor in Psychiatry (1960-1966).
Carroll, Edward Elmer, Ph.D. (Pennsylvania), Associate Professor of Nuclear Engineering (1966-1966).
Carroll, Lyn, M.A., Assistant Professor of Speech (1969-1969).
Carron, Harold, M.D. (Wayne U.), Clinical Assistant Professor of Anesthesiology (1965-1968).
Carson, Robert Emmett, Ph.D. (Michigan), Professor of Humanities, Adviser (1946-1946).
Carter, Buford James, Jr., M.E., Research Associate in Environmental Engineering (1968-1968).
Carter, John Michael, M.E., Assistant Professor of Building Construction (1962-1969).
Carter, Travis Ardus, Ed.D. (Florida), Assistant Professor of Comprehensive Logic and Assistant Counseling Psychologist, Adviser (1965-1969).
Carter, William E., Ph.D. (Columbia), Director of the Center for Latin American Studies and Associate Professor of Anthropology (1962-1969).
Casagrande, Jean, Ph.D. (Indiana), Assistant Professor of Romance Languages (1968-1968).
Casey, Ernest R., Jr., M.D. (George Washington University), Clinical Associate in Ophthalmology (1961-1961).
Casselman, Theorn W., M.S., Assistant Professor (Assistant Agricultural Engineer), IFAS, Everglades Experiment Station (1960-1960).
Cassin, Barbara C., B.S., (Simmons College), Teaching Assistant in Opthalmology (1969-1969).
Cassin, Sidney, Ph.D., (Texas), Professor of Physiology (1957-1969).
Casteel, James Doyle, Ph.D., (Peabody), Associate Professor of Education (1969-1969).
Cate, Charles Allen, Ed.D. (Texas), Associate Professor of Education (1953-1953).*
Cather, Jim Jr., M.D., (Louisiana State), Adm. Chief Resident (1967-1969), Department of Surgery.
Cato, James Carey, M.S., Assistant in Agricultural Economics, USDA., IFAS (1969-1969).

Caton, Donald, M.D., (Columbia University), Assistant Professor in Obstetrics and Gynecology (1969-1969).
Centifanto, Ysolina M., Ph.D., (University of Florida), Assistant Professor in Ophthalmology (1964-1969).
Chafin, Moses Benton, M.P.H., Assistant Professor of Physical Education (1964-1968).
Chalker, Paul, M.A., Assistant Editor, University of Florida Press (1957-1957).
Chalmers, David Mark, Ph.D. (Rochester), Professor of History (1955-1967).
Chambers, Raymond J., B.Ec. (University of Sydney), Visiting Professor of Accounting (1970-1970).
Chambers, Rosemary, M.Ed., Assistant Professor of Physical Therapy, (1967-1969).
Champion, John Mills, Ph.D. (Purdue), Chairman and Professor of Health and Hospital Administration; Professor of Management, (1964-1969).
Chance, Jean, C., B.S.J., Interim Instructor in Journalism and Communications (1969-1969).
Chanda, Kamal Chandra, Ph.D. (University of Manchester, England), Professor of Statistics (1967-1969).
Chang, Richard Taiwon, Ph.D. (Michigan), Assistant Professor of History (1966-1966).
Chapman, Herbert Lee, Jr., Ph.D., (Iowa State), Professor (Animal Nutrionist), IFAS, Range Cattle Experiment Station (1951-1965).*
Chapman, Richard Alexander, Ph.D., (Illinois), Professor, (Nematologist), IFAS (1969-1969).
Chapman, Willis Harleston, M.S., Agronomist and Head, North Florida Experiment Station (1942-1959).
Chayes, Dorothy J., M.D. (Women's Medical College of Pennsylvania) Clinical Instructor in Anesthesiology (1966-1968).
Chen, Kwan-Yu, Ph.D. (Pennsylvania), Associate Professor of Astronomy and Physical Sciences (1963-1969).
Chen, Wayne H., Ph.D. (Washington), Professor of Electrical Engineering and Chairman of the Department (1952-1965).
Chenette, Eugene R., Ph.D. (Minnesota), Professor of Electrical Engineering (1966-1966).*
Chernetski, Kent Eugene, Ph.D. (California), Assistant Professor of Zoology (1964-1964).
Cheshire, McKinley, Jr., (Duke) Resident in Psychiatry (1968-1968).
Cheves, Forest A., M.S., Assistant Professor of Chemistry (1961-1967).
Chiavacci, Wayne E., M.D. (University of Pennsylvania), Resident in Pediatrics (1968-1969).
Chikkagoudar, Malleshappa Sidramappa, MA, Interim Instructor of Statistics (1968-1968).
Childers, Donald Gene, Ph.D. (Southern California), Professor of Electrical Engineering (1965-1968).
Childers, Joanne M., M.A., Research Assistant in Child Psychiatry (1969-1969).
Childers, Richard C., M.D., (University of Rochester), Intern in Medicine, (1969-1969).
Childers, William Cole, Ph.D. (Florida), Professor of English, Adviser (1959-1969).*
Chinnici, Joanne Cecelia, M.A.P.H., Interim Instructor of Physical Education (1968-1968).
Chinoy, David A., M.D., (University of Florida), Resident in Medicine (1969-1969).
Chiou, George C. Y., Ph.D., (Vanderbilt), Assistant Professor in Pharmacology (1969-1969).
Chiras, Gloria L., MSN, Assistant Professor, College of Nursing (1967-1969).*
Chiu, Tsao-Yi, M.S.E., Senior Assistant in Engineering in Coastal and Oceanographic Engineering (1959-1961).
Cho, Min-Haing, M.D. (Severance Medical College of Yonsei University), Ph.D. (University of Sasketchewan), Postdoctoral Fellow in Pathology (1969-1969).
Choate, Rush Edgar, MSA, Professor (Agricultural Engineer) IFAS, (1947-1959).
Chow, Alroy A., M.D., (Dalhousie Medical School), Clinical Fellow in Medicine (1969-1969).

Christensen, Bent Aksel, Ph.D. (Minnesota), Professor of Civil Engineering (1963-1965).
Christian, Milton Burke, M.Ed., Interim Assistant Professor of Comprehensive Logic, Adviser (1964-1969).*
Christiansen, Kenneth A., Ed.D. (Missouri), Professor of Journalism and Communications and Director of Educational Television (1959-1959).*
Ch'u, Chauncey Cheng-hsi, M.A., Interim Assistant Professor of Chinese (1969-1969).
Chun, Paul W., Ph.D. (Missouri), Assistant Professor in Biochemistry (1966-1967).
Chynoweth, David P., Ph.D. (University of North Carolina), Interim Instructor in Bacteriology, IFAS (1969-1969).
Cimino, Louis E., M.D., Clinical Assistant Professor (1962-1969).
Ciznar, Ivan, C.Sc. (Slovak Academy of Science) Postdoctoral Fellow in Microbiology (1968-1968).
Clapp, James F., M.D., (University of Vermont), Postdoctoral Fellow in Obstetrics and Gynecology (1969-1969).
Clark, Anthony James, Ph.D. (Denver), Assistant Professor of Speech (1969-1969).
Clark, Edward Bowie, Jr., M.A., Interim Instructor of Education (1966-1966).
Clark, Ewen M., M.D., (University of St. Andrews, Scotland), Instructor in Medicine (1966-1969).
Clark, Fred, M.S.A., Professor of Agronomy, IFAS (1940-1963).
Clark, Genevieve, M.Ph., Assistant Professor of Nursing, College of Nursing, (1967-1967).
Clark, Harold Brown, Ph.D. (Kentucky), Professor of Agricultural Economics and Agricultural Economist, Agricultural Experiment Stations (1958-1958).*
Clark, Vernon Wilmot, J.D. (Florida), Professor of Law (1946-1946).
Clark, William Edwin, Ph.D. (Tulane), Associate Professor of Mathematics (1965-1968).
Clarke, Carl T., Ph.D., (Florida) Associate Clinical Psychologist in Mental Health (1964-1965).
Clarkson, Mark Hall, Ph.D. (Texas), Professor of Aerospace Engineering and Chairman of Department (1961-1961).
Clayton, Joe Edward, M.S., Associate Professor (Associate Agricultural Engineer), IFAS, USDA, Everglades Experiment Station (1965-1965).
Clayton, William E., M.D., (University of Virginia), Chief Resident in Urological Surgery (1965-1969).
Clem, Lester William, Ph.D. (Miami), Associate Professor of Microbiology (1966-1968).
Clement, Stephen P., M.D., (Harvard), Clinical Assistant Professor (1968-1969).
Clore, Forrest C., M.D. (Michigan), Resident in Radiology (1967-1968).
Clower, James Wesley, M.D. (Georgia) Clinical Associate in Ophthalmology (1968-1968).
Clubok, Alfred B., Ph.D. (Michigan), Associate Professor of Political Science (1958-1964).
Cluff, Leighton E., M.D. (George Washington), Professor and Chairman of the Department of Medicine (1966-1966).
Cobb, William T., M.D. (Florida), Resident in Ophthalmology (1969-1969).
Coggins, Deborah R., M.D. (Duke), Clinical Associate (1959-1969).
Coggins, Wilmer J., M.D. (Duke), Associate Professor of Medicine and Director, Department of Student Health (1962-1967).
Cohen, Edwin, Ph.D. (Iowa State), Associate Professor of Clinical Psychology and Psychology—V.A.[1] (1968-1968).
Cohen, Howard Lionel, Ph.D. (Indiana), Assistant Professor of Physical Sciences and Astronomy (1968-1968).
Cohen, Louis David, Ph.D. (Duke), Chairman and Professor of Clinical Psychology; Professor of Psychology, (1962-1962).
Cohen, Mortimer, Ph.D., (Minnesota), Professor (Plant Pathologist), IFAS, Indian River Field Laboratory (1956-1968).
Coker, John L., D.D.S., (Pennsylvania), Clinical Assistant Professor in Dental Surgery (1961-1969).
Cole, David O., M.D., (University of Mississippi), Resident in Radiology (1969-1969).
Cole, Moses McWillie, B.S., Instructor of Entomology (1966-1966).

Colgate, Samuel Oran, Ph.D. (M.I.T.), Associate Professor of Chemistry (1959-1966).
Collett, William K., D.D.S. (Pittsburgh), Associate Professor and Chairman, Division of Radiology, College of Dentistry; and Associate Professor, Department of Radiology, College of Medicine, (1968-1968).
Collier, Courtland A., M.E., Assistant Professor of Civil Engineering (1961-1967).
Collins, Dorothy E., M.S.W., Assistant Professor of Social Work in Psychiatry (1966-1969).
Collins, Ernest, M.D., Resident in Obstetrics and Gynecology (1967-1967).
Collins, George H., M.D., (Vermont), Professor of Pathology and Medicine (1953-1969).
Colwell, William Maxwell, D.V.M., Ph.D. (Georgia), Assistant Professor (Assistant Microbiologist), Institute of Food and Agricultural Sciences (1969-1969).
Combrink, Carolyn Jean, M.S., Assistant Professor (Extension Housing Specialist), IFAS, (1966-1966).
Combs, Arthur Wright, Ph.D. (Ohio State), Professor of Education (1954-1954).
Combs, George Ernest, Ph.D. (Iowa State), Professor of Animal Science and Animal Nutritionist, Agricultural Experiment Stations (1951-1967).*
Confer, John L., M.S., Interim Assistant Professor of Zoology (1969-1969).
Conklin, James Byron, Jr., Sc.D. (M.I.T.), Assistant Professor of Physics (1964-1964).
Conner, Beverly Odom, M.A. (L.S.U.), Instructor of Mathematics (1968-1968).
Conner, Frederick William, Ph.D. (Pennsylvania), Vice-President for Academic Affairs and Professor of English (1935-1968).*
Conner, H. Henry, B.A., Instructor in Journalism and Communications and Producer-Director, Television Station WUFT (1966-1967).
Conner, J. Wayne, Ph.D. (Princeton), Professor of Romance Languages and Chairman of Department; Director of Division of Humanities (1962-1968).
Conner, James Richard, M.S., Interim Assistant Professor in Agricultural Economics, IFAS (1969-1969).
Conner, Totsye Johnson, M.Ed., Teacher, P.K. Yonge Laboratory School, (1968-1969).
Conover, Charles Albert, M.S.A., Assistant Professor (Assistant Ornamental Horticulturist), IFAS (1963-1963).
Conover, Robert Armine, Ph.D., (Illinois), Professor (Plant Pathologist) and Head, IFAS, Sub-Tropical Experiment Station (1947-1962).
Conradt, David Paul, B.A. (Brown), Interim Assistant Professor of Political Science (1968-1968).
Conroy, Stephen Sebastian, Ph.D. (Iowa), Associate Professor of Social Sciences (1960-1969).*
Conway, Barbara L., MN, Interim Instructor, College of Nursing (1969-1969).
Cook, Allyn Austin, Ph.D. (Wisconsin), Professor (Plant Pathologist) Institute of Food and Agricultural Sciences (1954-1967).
Cookston, Ronald Roy, M.S., Counselor, Division of Housing (1968-1968).
Cooper, Alice Joyce, Ed.D. (Columbia), Professor of Education (1957-1957).*
Cooper, Janet E., M.A. (University of Florida), Assistant in Pediatrics (1969-1969).
Cooperrider, Donald Elmer, D.V.M. (Ohio State), M.Sc., Professor (Parasitologist), Institute of Food and Agricultural Sciences (1968-1968).
Coppock, Glenn Edgar, M.S., Professor (Agricultural Engineer), IFAS, FCC, Citrus Experiment Station (1958-1958).
Coppock, John Andrew, M.S., Agricultural Engineer, Fla. Citrus Commission (1958-1968).
Coram, Wilmer Thomas, Jr., M.A.E., Head, Department of Special Programs, Division of Continuing Education (1957-1969).
Corn, Mary Louise, M.S., Counselor, Division of Housing (1968-1968).
Cornelius, D. Kim, B.S. (University of Florida), Instructor, Computing Center (1969-1969).
Cornell, John Andrew, Ph.D., (Virginia Polytechnic Institute), Assistant Professor of Statistics, Agricultural Experiment Station (1968-1968).
Cornwell, George W., Ph.D. (Michigan), Associate Professor of Wildlife Ecology and Associate Forester, Agricultural Experiment Station (1967-1967).
Corpeño, Robert Salomon, M.P.A., Research Associate, Latin American Data Bank (1967-1967).

Cory, Lloyd W., M.S., Captain, Assistant Professor of Aerospace Studies (1968-1968).
Cosby, Betty Wallace, Ph.D. (Syracuse), Assistant to the Vice President for Student Affairs (1966-1969).
Cotter, Julian Ray, M.D., (Johns Hopkins), Associate Professor of Obstetrics and Gynecology (1959-1967).
Cotton, Jane Berbyshire, M.A., Research Assistant in Medicine (1967-1967).
Couch, James E., M.S., Interim Instructor in Journalism and Communications (1968-1968).
Couch, Leon Worthington, II, Ph.D. (Florida), Assistant Professor of Electrical Engineering (1967-1968).
Cousar, James E., III, M.D., (Johns Hopkins), Clinical Assistant Professor in Surgery—JHEP—(1969-1969).
Covey, Charles Dean, Ph.D. (Louisiana), Associate Agricultural Economist Marketing, Agricultural Extension Service, (1957-1967).
Cox, Ernest Haynes, Ph.D. (North Carolina), Assistant Dean of the College of Arts and Sciences and Professor of English (1947-1964).
Cox, Merlin Gwinn, Ph.D. (Florida), Associate Professor of Social Sciences, Adviser (1955-1966).*
Coyle, John M., M.D., (Yale), Resident in Medicine (1969-1969).
Crago, John A., M.D. (Cornell), Clinical Instructor in Medicine (1959-1959).
Crall, James Monroe, Ph.D., (Missouri), Professor (Plant Pathologist) and Head, IFAS, Watermelon and Grape Investigations Laboratory (1952-1954).
Cram, Stuart Proud, Ph.D. (Illinois), Assistant Professor of Chemistry (1966-1966).
Cramer, John W., Ph.D. (Wisconsin) Associate Professor in Pharmacology and Therapeutics (1967-1967).
Crandall, Catherine Ann, Ph.D. (Purdue), Research Associate and Instructor in Pathology (1960-1960).
Crandall, Richard B., Ph.D. (Purdue), Assistant Professor in Microbiology (1960-1964).
Cranney, Adelbert Garr, Jr., Ph.D. (Minnesota), Associate Professor of English and Education and Director of Reading Laboratory and Clinic (1966-1969).
Craps, John Ellis, Ph.D. (Johns Hopkins), Assistant Professor of German (1939-1952).*
Crass, Maurice F., Ph.D., (Vanderbilt), Assistant Professor of Medicine and Physiology (1966-1969).
Craven, Roy C. Jr., M.F.A., Director, University Gallery; Professor of Art (1954-1967).*
Cravens, Sally Ann, M.S., Assistant Librarian, Documents (1967-1967).
Crebo, Dorothy Westhafer, M.A., Teacher, P.K. Yonge Laboratory School, (1968-1969).
Creel, Austin Bowman, Ph.D. (Yale), Associate Professor of Religion (1957-1964).*
Crevasse, Lamar E., M.D., (Duke), Professor of Medicine and Assistant Dean for Regional Medical Program (1959-1969)
Crews, Harry Eugene, M.Ed., Assistant Professor of English (1968-1968).
Crews, James William, Ed.D. (Indiana), Associate Professor of Education (1948-1963).*
Crews, Ruthellen, Ed.D., (Columbia), Associate Professor of Education (1966-1969).
Cribbett, Albert F., M.S.A., Director of Special Programs and Assistant Professor of Agricultural Economics, Institute of Food and Agricultural Sciences (1954-1962).
Criddle, Ernest David, M.A., Interim Instructor of Speech (1968-1968).
Crill, Jerry Pat, Ph.D., (Wisconsin), Assistant Professor (Assistant Plant Pathologist), IFAS, Gulf Coast Experiment Station (1968-1968).
Cripe, Jerry Leland, M.A., Assistant Professor of Social Sciences (1965-1967).
Crist, Earl Richard, B.A., Instructor of Medical Technology; Chief Technologist, Clinical Hematology, (1963-1966).
Crist, Joan Lee, M.S.W., Academic Professional I in Social Work, Psychiatry (1967-1967).
Crist, Raymond E., Docteur és Lettres (Grenoble, France), Research Professor of Geography (1951-1951).
Croker, George William, M.S., Director of Research (1968-1968).

Crokett, Joe Richard, Ph.D., (Florida), Associate Professor (Associate Animal Geneticist), IFAS, Everglades Experiment Station (1960-1969).
Cromroy, Harvey Leonard, Ph.D. (North Carolina State), Associate Professor of Radiation Biology and Entomology (1964-1964).
Cromwell, Richard Park, M.E., Assistant Professor (Asst. Agricultural Engineer) IFAS, (1967-1969).
Crone, Ernest George, M.Ed., Assistant Professor of Physical Education (1957-1963).
Crosby, Floyd R., Manager, Data Processing (1966-1966).
Cross, Clark Irwin, Ph.D. (Washington), Associate Professor of Geography and Physical Sciences (1949-1954).
Cross, Jerome Lee, M.E., Research Associate in Electrical Engineering (1968-1968).
Cross, William Gail, M.E., Assistant Director, J. Wayne Reitz Union (1960-1966).
Crouch, Helen Johnson, M.A., Assistant Professor, P. K. Yonge Laboratory School (1957-1957).
Crumbley, D. Larry, Ph.D. (Louisiana State University), Associate Professor of Accounting (1970-1970).
Cullen, Stanley I., M.D., (University of Miami), Associate Professor in Medicine (1966-1969).
Cummings, Robert C., Director, Printing Department (1963-1963).
Cunha, Tony Joseph, Ph.D. (Wisconsin), Professor and Chairman, Department of Animal Science, Institute of Food and Agricultural Sciences (1948-1950).
Cunningham, Hugh W., M.A., Professor of Journalism and Communications (1955-1965).
Cunningham, Myron Arthur, Ed.D. (Northwestern), Professor of Education (1953-1958).
Cunningham, Richard Wayne, M.D. (Florida) Clinical Instructor in Medicine (1962-1966).
Cuppy, Diana L., B.S. (Kansas State), Research Assistant in Medicine (1960-1962).
Curran, Charles, Howard, D.Sc., (Montreal), Professor (Entomologist), IFAS, Watermelon and Grape Investigations Laboratory (1961-1961).
Curran, Robert Lynn, Ed.D. (Harvard), Professor of Education (1952-1969).
Curry, Martin Lee, M.Ed., Interim Instructor in Humanities (1967-1967).
Curry, Rupert C., M.D., (University of Florida), Intern in Medicine (1969-1969).
Curtis, Clayton C., Ph.D. (Indiana), Associate Professor of Real Estate and Urban Land Studies (1958-1961).
Cushman, Phillip W., M.D. (Indiana) Resident in Psychiatry (1967-1967).
Cusumano, Charles L., M.D. (Georgetown University) Assistant Professor of Microbiology and Medicine (1968-1968).
Cutler, Ronald John, Ed.D. (Columbia), Associate Professor of English, (1946-1959).
Cutler, William H., Ph.D., (Southern California), Assistant Professor of Communicative Disorders, V.A.[1] (1967-1967).
Daane, Beth, M.S., Assistant Professor of Library Science (1969-1969).
Dace, Melvin C., M.D. (Washington University), Clinical Instructor in Medicine (1962-1968).
Dage, Raymond Ellison, M.A., Interim Instructor in English (1969-1969).
Dahms, Alan M., Ph.D. (Colorado State College), Assistant Professor of Comprehensive Logic and Education, Adviser (1969-1969).
Daicoff, George, M.D. (Indiana) Associate Professor of Thoracic and Cardiovascular Surgery (1967-1967).
Dallerba, Maria Grazia, M.U.P., Visiting Research Associate Professor of Architecture (1969-1969).
Dalrymple, Robert Anthony, M.S., Assistant in Engineering in Coastal and Oceanographic Engineering (1968-1968).
Dalsheimer, Barbara Corinne, M.P.H., Instructor, P. K. Yonge Laboratory School (1955-1960).
Dalton, George Ronald, Ph.D. (Michigan), Professor of Nuclear Engineering Sciences (1959-1968).*
Daly, James William, M.D. (Loyola) Associate Professor of Obstetrics and Gynecology (1968-1968).
D'Amato, Paul H., M.D., (George Washington), Intern in Medicine (1969-1969).
Damen, Mark, B.S., Academic Professional II of Journalism and Communications and TV Program Director, Television Station WUFT (1963-1969).

Damico, Alfonso J., M.A., Interim Assistant Professor of Political Science (1969-1969).
Damico, Sandra Bowman, M.A., Interim Teacher, P.K. Yonge Laboratory School (1969-1969).
Damron, Bobby Lee, Ph.D. (Florida), Assistant Professor of Poultry Science and Assistant Nutritionist, Agricultural Experiment Station (1966-1968).
Dana, Alvin Herk, M.E.D., Admissions Officer (1966-1966).
Danburg, Russell LaVerne, M.M., Professor of Music (1948-1966).
Daneman, E. Adams, M.D. (University of Cincinnati), Clinical Associate in Psychiatry (1963-1963).
Danielson, Sharon L., M.S.W., (Florida State University), Academic Professional I in Psychiatry (1969-1969).
Dantzman, Charles Leonard, Ph.D., (Florida), Assistant Professor (Assistant Soils Chemist), IFAS, Range Cattle Experiment Station (1959-1960).
Darby, John F., Ph.D., (Wisconsin), Professor (Plant Pathologist) and Head, IFAS, Central Florida Experiment Station (1951-1966).
Dasta, Anthony Joseph, M.S., Assistant Professor of Architecture (1966-1967).
Dauer, Manning Julian, Ph.D. (Illinois), Professor of Political Science and Chairman of Department; Director of Division of Social Sciences (1933-1950).*
Daurelle, George P., M.D. (Hahnemann), Clinical Associate in Radiology (1965-1965).
Daurer, Rosemary B., M.P.E.H., Interim Teacher, P. K. Yonge Laboratory School (1966-1966).
DeVault, James W., Ph.D. (Columbia), Professor of Accounting (1947-1947).
David, J. K., M.D., Clinical Associate Professor (JHEP) in Pediatrics (1965-1968).
Davis, Carl John, B.A., Major, U.S. Army, Assistant Professor of Military Science (1968-1968).
Davis, Charles Leon, Jr., B.S., Major U.S. Army, Assistant Professor of Military Science (1968-1968).
Davis, Clarence Edward, Ph.D. (North Carolina), Interim Assistant Professor of Statistics, (1969-1969).
Davis, Denzil Robert, A.B., Assistant Professor (Assistant Meteorologist), IFAS, USWB, North Florida Experiment Station (1963-1963).
Davis, Edward Arnold, Ed.D. (Florida), Assistant Professor of Education (1951-1951).
Davis, George Kelso, Ph.D. (Cornell), Director, Division of Biological Sciences; Professor of Animal Science and Animal Nutritionist; Director of Division of Biological Sciences in the College of Arts and Sciences (1942-1965).
Davis, Gerald Rogers, B.S., Assistant Professor (Assistant Meteorologist), IFAS, USWB, Weather Forecasting Service (1960-1960).
Davis, Horance Gibbs, Jr., M.A., Professor of Journalism and Communications (1954-1965).
Davis, Hugh Chester, Jr., Ph.D. (Tennessee), Associate Professor of Clinical Psychology and Psychology (1960-1965).
Davis, James M., M.D., (Harvard), Clinical Instructor in Surgery (1969-1969).
Davis, Joseph Steven, Ph.D. (Iowa), Assistant Professor of Botany (1966-1966).
Davis, Josh D., M.D. (Alabama), Clinical Associate in Psychiatry (1963-1963).
Davis, R. Hunt, Jr., Ph.D., (Wisconsin), Assistant Professor of History (1967-1969).
Davis, Richard Elwood, M.S., Assistant Basketball Coach (1966-1966).
Davis, Robert Stanley, B. Arch., Assistant Professor of Architecture (1958-1958).
Dawson, Robert Charles, Program Director, J. Wayne Reitz Union (1967-1967).
Dawson, William W., Ph.D., (Florida State), Professor of Ophthalmology, Psychology, and Physiology (1965-1969).
Deakin, Motley Fremont, Ph.D. (California), Associate Professor of English (1962-1967).
Deal, Pamela C., M.D., (University of Florida), Intern in Medicine (1969-1969).
Deal, Thomas E., M.D., Intern in Medicine (University of Florida) (1969-1969).
Deal, William B., M.D., (University of North Carolina), Chief Resident and Instructor in Medicine (1964-1969).
Dean, Charles Edgar, Ph.D., (North Carolina State), Professor (Argonomist), IFAS, North Florida Experiment Station (1959-1969).
Dean, Robert George, D.Sc. (Massachusetts Institute of Technology), Professor of

Coastal and Oceanographic Engineering and Chairman of Department; Professor of Civil Engineering (1966-1966).
Dean, Rollo Hiram, Assistant Professor (Assistant Meteorologist), IFAS, USWB, Weather Forecasting Service (1942-1942).
Deason, Douglas Louis, Ph.D., (Purdue), Assistant Professor, (Assistant Agricultural Engineer), Citrus Experiment Station, IFAS, (1969-1969).
De Busk, Franklin, M.D., (Johns Hopkins), Associate Professor in Pediatrics (1966-1969).
Decker, Phares, Ph.D. (Cornell), Professor (Plant Pathologist) Institute of Food and Agricultural Sciences (1942-1966).
DeCoster, David Arthur, M.A., Assistant to the Director, Division of Housing (1962-1967).*
Dedrick, Charles V.L., M.Ed., Interim Instructor of Education (1969-1969).
Deen, William Welch, Jr., M.S., Assistant Professor (Assistant Agricultural Engineer), IFAS, Everglades Experiment Station (1965-1967).
DeFord, James W., M.D. (Florida) Resident in Medicine (1968-1968).
deFuniak, Herbert Rivers, M.S., Associate Librarian and Chairman of Circulation Department (1966-1969).
de Groot, Johannes, Ph.D. (Groningen), Research Professor of Mathematics (1966-1967).
DeHoff, Robert Thomas, Ph.D. (Carnegie Tech.), Associate Professor of Metallurgical and Materials Engineering (1959-1964).
Deinzer, Harvey T., J.D., Ph.D. (Michigan), Professor of Accounting (1947-1949).
Dekle, George Wallace, B.S.A., Instructor of Entomology (1966-1966).
Delaney, Lyles R., B.S., Instructor of Medical Technology, V.A.[1], (1967-1967).
De La Torre, Angel, M.D., (University of Havana), Assistant Professor in Medicine (1965-1969).
Dell, George A., M.D., (St. Louis University), Clinical Assistant Professor in Pediatrics (1961-1969).
Dell, Yvonne Cody, M.A., Interim Instructor in English (1967-1967).*
Delony, Dexter, LL.M. (Harvard), Professor of Law (1948-1951).
Demeter, Constance, M.S., Instructor of Communicative Disorders, (1969-1969).
Denman, Sidney B., Ph.D. (Duke University), Associate Professor of Psychiatry and Sociology (1966-1966).
Denmark, Harold Anderson, M.S., Associate Professor of Entomology (1966-1966).
Dennis, Carroll Wayne, B.S., Captain, U.S. Army, Assistant Professor of Military Science (1969-1969).
Dennison, J. Randall, M.D. (Washington U.) Intern in Surgery (1968-1968).
Dennison, Raymond Alexander, Ph.D. (Iowa), Professor and Chairman, Department of Food Science, Institute of Food and Agricultural Sciences (1945-1956).
Denny, Eleanore Davison, M.Ed., Off-Campus Counselor, Division of Housing (1969-1969).
de Padua, Constante, M.D. (Philippines), Instructor in Anesthesiology (1967-1967).
Der-Houssikian, Haig, M.A., Interim Assistant Professor of Foreign Languages (1967-1967).
Derrick, Clarence, Ph.D. (Chicago), Professor of Humanities; Chairman, Department of Humanities (1953-1962).
Detweiler, John S., M.S.J., Interim Instructor in Journalism and Communications (1965-1969).*
Deurloo, Douglas A., M.D., (University of Florida) Resident and Trainee in Radiology (1967-1969).
Deutsch, Donna Marion, M.P.H., Assistant Professor of Physical Education (1966-1968).
Dew, Donald, Ph.D. (Iowa), Research Assistant Professor of Speech (1963-1963).*
DeWitt, Robert M., Ph.D. (Michigan), Associate Professor of Zoology and Acting Chairman of the Department (1954-1969).
Dewsbury, Donald Allen, Ph.D. (Michigan), Assistant Professor of Psychology (1966-1966).
Deyrup, James Alden, Ph.D. (Illinois), Associate Professor of Chemistry (1965-1969).
Diamond, Katheleen Kervin, M.A., Interim Instructor of French (1969-1969).
Diaz, Nils Juan, Ph.D. (Florida), Interim Assistant Professor of Nuclear Engineering Sciences (1969-1969).

Dickerson, Otti Joe, Ph.D. (Wisconsin), Interim Associate Nematologist, Agricultural Experiment Station (1968-1968).
Dickey, Doug, B.S. (Florida), Head Football Coach (1969-1969).
Dickey, Ralph Davis, M.S.A., Professor (Ornamental Horticulturist), IFAS (1927-1955).
Dickinson, Joshua Clifton, Jr., Ph.D. (Florida), Director and Curator of Ornithology, Florida State Museum; Associate Professor Zoology (1946-1961).
Dickinson, Joshua Clifton, III, Ph.D. (Florida), Assistant Director of Center for Tropical Agriculture, Institute of Food and Agricultural Sciences; and Assistant Professor of Geography (1967-1967).
Dickson, Donald Ward, Ph.D. (North Carolina State) Assistant Professor (Assistant Nematologist Pathologist) Institute of Food and Agricultural Sciences (1968-1968).
Diller, George T., Ph.D. (Stanford), Assistant Professor of French (1968-1968).
Dimsdale, Parks B., Jr., M.B.A., Interim Instructor in Marketing (1965-1965).
Dinsmore, James J., M.S., Interim Instructor in Biological Sciences (1969-1969).
Director, Stephen William, Ph.D. (California), Assistant Professor of Electrical Engineeering (1968-1969).
Dixon, James Cannon, Ph.D., (North Carolina), Professor of Psychology (1949-1956).
Doherty, Edward Thomas, M.A., Research Associate in Speech (1968-1969).
Doherty, Herbert Joseph, Ph.D. (North Carolina), Professor of History and Social Sciences and Chairman of Social Sciences (1949-1964).*
Dolbier, William Read, Jr., Ph.D. (Cornell), Assistant Professor of Chemistry (1966-1966).
Donnenfeld, O. Walter, D.D.S. (New York), Professor and Chairman, Division of Periodontology, College of Dentistry, 1969-1969.
Donovan, Clement Harold, Ph.D. (North Carolina), Professor of Economics and Chairman of Department of Economics (1940-1952).
Donovan, J. Marie, B.A., (D'Youville College), Research Assistant in Biochemistry (1969-1969).
Dorman, F. Ray, B.A., Assistant to Athletic Director (1968-1968).
Doty, Franklin Ahasuerus, Ph.D. (Iowa), Professor of History and Social Sciences and Dean of University College (1946-1966).
Doty, Keith Lonnie, Ph.D. (California), Assistant Professor of Electrical Engineering (1968-1968).
Dougald, Donald Evan, M.S.A.E., Associate Professor of Architecture (1970-1970).
Dougherty, Marshall Harding, B.S., Assistant Professor (Assistant Chemical Engineer), IFAS, FCC, Citrus Experiment Station (1953-1953).
Dougherty, Richard Haines, Ph.D. (North Carolina State University), Assistant Professor (Assistant Food Scientist), IFAS (1969-1969).
Douglas, Carroll Reece, Ph.D. (Tennessee), Assistant Professor of Poultry Science, IFAS (1969-1969).
Dove, Derek B., Ph.D. (London), Associate Professor of Metallurgical and Materials Engineering; Associate Professor of Electrical Engineering (1967-1967).
Dow, J. Kamal, Ph.D. (Missouri), Assistant Agricultural Economist, Agricultural Experiment Station, IFAS (1968-1968).
Dragstedt, Lester R., Ph.D., (Chicago), M.D., (Rush), Research Professor in Surgery and Professor in Physiology (1959-1969).
Drake, David Allyn, Ph.D. (Syracuse), Assistant Professor of Mathematics (1968-1968).
Dresdner, Richard David, Ph.D. (Pennsylvania State), Professor of Chemistry (1953-1966).
Drylie, David M., M.D., (Bowman Gray), Associate Professor in Surgery (1963-1969).
DuCharme, Ernest Peter, Ph.D. (Minnesota), Professor (Plant Pathologist), IFAS, Citrus Experiment Station (1946-1956).
Dudeck, A.E., Ph.D., (Penn State) Assistant Professor (Assistant Ornamental Horticulturist) Plantation Field Laboratory, IFAS (1970-1970).
Dudgeon, David L., M.D., (Ohio State), Chief Resident in General Surgery (1966-1969).
Dugan, Robert John, MSEE, Research Associate in Chemistry (1969-1969).

Duggan, Dennis E., Ph.D. (Oregon State University), Associate Professor (Associate Bacteriologist), IFAS, and Division of Biological Sciences (·1967-1967).
Dumas, Neil Stephen, Ph.D. (North Dakota), Assistant Professor of Research and Rehabilitation Counseling, (1968-1968).
DuMas, Paul Alfred, M.D. (U. of Laval, Quebec) Fellow in Pediatrics (1968-1968).
Dunavant, Billy Glenn, Ph.D. (Purdue), Director of Nuclear Sciences Division; Professor of Nuclear Sciences and Environmental Engineering; Radiation Control Officer (1960-1966).
Dunavin, Leonard Sypret, Jr., Ph.D. (Florida), Associate Professor (Associate Agronomist), IFAS, West Florida Experiment Station (1959-1967).
Duncan, C.W., M.Ed., Interim Instructor of Education, (1969-1969).
Duncan, Ruth W., M.A., Instructor, P.K. Yonge Laboratory School, (1968-1969).
Dunkle, John Robert, Ph.D. (Clark), Professor of Physical Sciences and Geography; Assistant Dean University College (1949-1965).
Dunn, Jimmy, B.S. (Florida) Assistant Football Coach (1969-1969).
Dunn, Malcolm J., Optician, Research Assistant, (1964-1969).
Dunnam, Francis Eugene, Ph.D. (Louisiana State), Associate Professor of Physics (1958-1967).
Durgin, William W., Ph.D. (Brown), Interim Assistant Professor of Engineering Science and Mechanics (1970-1970).
Durling, Allen Edgar, Ph.D. (Syracuse), Associate Professor of Electrical Engineering (1964-1966).
Durrance, Charles Livingston, Ed. D. (Columbia), Professor of Education (1940-1960).
Durrance, Kenneth Leroy, M.Ag., Associate Animal Husbandman, Agricultural Extension Service (1954-1966).
Dushoff, Ira M., M.D., (University of Pennsylvania), Clinical Assistant Professor in Surgery—JHEP—(1969-1969).
Du Toit, Brian Murray, Ph.D. (Oregon), Associate Professor of Anthropology (1966-1969).
Dwyer, Richard Anthony, Ph.D. (University of California at Los Angeles), Assistant Professor of English (1966-1966).
Dykes, Elma Ethel, M.A., Assistant Professor in Nursing (1962-1966).
Eardley, Robert J., M.D. (Arkansas) Clinical Associate in Psychiatry (1967-1967).
Easley, Caroline W., M.S. (University of Florida), Research Associate in Medicine (1962-1969).
Easley, John Forest, M.S., Assistant Animal Nutritionist, Agricultural Experiment Stations (1962-1964).
Eastwood, Ralph Allen, Ph.D. (Cornell), Economist, Marketing, Agricultural Extension Service (1957-1957).
Eaton, Elizabeth S., M.A., Assistant Librarian, Health Center Library (1962-1962).
Ebcioglu, Ibrahim K., Ph.D. (Minnesota), Professor of Engineering Science and Mechanics (1961-1966).
Echevarria, Rene, M.D. (Havana) Assistant Professor of Pathology (1960-1966).
Eckdahl, Jack Polk, M.Ed., Assistant Professor of Physical Education (1951-1955).
Eddleman, Bobby Ross, Ph.D., (North Carolina State), Associate Professor (Assistant Agricultural Economist), IFAS (1966-1969).
Edds, George Tyson, D.V.M. (Texas A&M), Ph.D. (Minnesota), Professor and Chairman, Department of Veterinary Science, Institute of Food and Agricultural Sciences (1962-1962).
Eddy, Elizabeth M., Ph.D. (Columbia), Associate Professor of Sociology and Director Urban Studies Bureau (1967-1967).
Eden, William Gibbs, Ph.D. (Illinois), Professor and Chairman, Department of Entomology, Institute of Food and Agricultural Sciences (1965-1965).
Edson, Charles Grant, M.S.E., Associate Professor of Engineering Science and Mechanics (1946-1951)
Edson, Seton Norman, M.S., Associate Professor of Soils, Agricultural Experiment Station (1950-1958).
Edwards, George John, B.A., Research Associate, IFAS, Citrus Experiment Station (1953-1966).
Edwards, Richard Archer, Ph.D. (North Carolina), Professor of Geology (1940-1966).

Edwards, Thomas S., M.D. (Tulane) Clinical Associate in Ophthalmology (1962-1962).
Edwards, William Franklin, Ph.D., (University of Florida), Interim Assistant Professor, IFAS (1966-1969).
Edwardson, John Richard, Ph.D. (Harvard), Professor of Agronomy, IFAS (1953-1966).
Egan, Edmund A., II, M.D., (Emory), Chief Resident in Pediatrics (1967-1969).
Eggert, Chester Lee, Ed.D. (Indiana), Professor of Education (1948-1954).
Eibner, John R., B.S., Director Public Relations, Division of Intercollegiate Athletics (1950-1966).
Eisenberg, Martin Allan, D. Eng. (Yale), Associate Professor of Engineering Science and Mechanics (1966-1968).
Eitzman, Donald V., M.D., (University of Iowa), Professor in Pediatrics (1958-1969).
Elefthery, Dean G., M.D., Clinical Associate in Psychiatry (1968-1968).
Elgerd, Olle Ingemar, D.Sc. (Washington, Mo.), Professor of Electrical Engineering (1956-1962).*
Eliot, Robert S., M.D., (Colorado), Professor of Medicine (1967-1969).
Elkins, Virgil Lynn, M.S.A., Area Program Specialist Agricultural Extension Service, Tallahassee (1949-1961).
Ellenson, Eugene, B.A., Executive Assistant to the Athletic Director (1960-1969).
Ellett, John S., II, Ph.D., (North Carolina), Assistant Professor of Accounting (1967-1967).
Elliott, Herschel Hugh, Ph.D. (Yale), Associate Professor of Philosophy (1955-1964).
Elliott, Larry P., M.D. (Tennessee) Professor in Radiology (1967-1967).
Elliott, Paul Russell, Ph.D. (Michigan), Assistant Dean for Pre-Professional Education in the Colleges of Arts and Sciences, Dentistry, and Medicine and Associate Professor of Zoology (1963-1969).
Ellis, Betty Ruth, Ed.D. (Wayne State), Assistant Professor of Education (1965-1968).*
Ellis, George Leland, Ph.D. (Florida), Interim Research Associate, Agricultural Experiment Station (1968-1968).
Ellis, William Hobart, Ph.D. (Florida State), Associate Professor of Nuclear Engineering (1962-1966).
Ellison, Arthur C., Research Assistant in Pharmacology and Therapeutics (1967-1967).
Ellison, Emily D., B.S., Research Associate in Ophthalmology (1962-1962).
Elmore, William Earl, B.S., C.P.A., Vice President for Administrative Affairs (1950-1967).
Elmstrom, Gary William, Ph.D., (California), Assistant Professor (Assistant Horticulturist), IFAS, Watermelon and Grape Investigations Laboratory (1969-1969).
Elsner, Jürgen, Ph.D. (Gottingen), Visiting Assistant Professor of Mathematics (1969-1969).
Emerson, Ann P., M.S., Assistant Professor of Clinical Nutrition, (1969-1969).
Emerson, James D., M.D. (Washington University) Resident in Surgery (1968-1968).
Emerson, Richard P., M.D. (Harvard), Clinical Associate in Psychiatry (1965-1965).
Emmel, Leonard G., M.D. (Pennsylvania) Clinical Instructor in Medicine (1959-1959).
Emmel, Thomas C., Ph.D. (Stanford), Assistant Professor of Biological Sciences and Zoology (1968-1968).
Engelhard, Arthur W., Ph.D., (Iowa State), Associate Professor (Associate Plant Pathologist), IFAS, Gulf Coast Experiment Station (1966-1966).
England, William Tilford, Ph.D. (Virginia), Assistant Professor of Mathematics (1968-1968).
Englehart, Richard Wilson, Ph.D. (Penn State), Assistant Professor of Nuclear Engineering Sciences (1968-1968).
Enneking, William F., M.D. (Wisconsin), Professor of Surgery and Pathology and Chief of Division of Orthopedics (1959-1962).
Eno, Charles Franklin, Ph.D. (Purdue), Professor and Chairman, Department of Soils, Institute of Food and Agricultural Sciences (1950-1965).

Entner, Marvin Lee, Ph.D. (Minnesota), Associate Professor of History (1961-1968).
Enwall, Hayford Octavius, J.D. (Florida), Professor of Law (1956-1956).
Eoff, Kay Marvin, Ph.D. (Florida), Assistant Professor of Physical Sciences and Astronomy (1962-1968).
Eoff, Sara P., B.A., Assistant in Research in Biochemistry (1966-1966).
Eppes, Bill Gorton, M.Arch., Associate Professor of Building Construction (1968-1968).
Epting, Franz R., Ph.D. (Ohio State University), Assistant Professor of Psychology (1967-1967).
Epting, Lynda Hyde, M.A.L.S., Assistant Librarian, Reference and Bibliography (1969-1969).
Ergood, Bruce, M.A., Research Assistant in Psychiatry (1969-1969).
Erwin, John R., M.D. (University of Illinois), Clinical Associate in Psychiatry (1965-1965).
Escalante, Gustavo, M.D. (El Salvador) Resident in Ophthalmology (1967-1967).
Escobar, Nelson, M.D., (University of Salamanca), Resident in Surgery (1969-1969).
Esser, Robert Paul, B.S.A., Instructor of Entomology (1966-1966).
Estes, Marion, M.D., Clinical Associate in Psychiatry (1968-1968).
Eutsler, Roland Byerly, Ph.D. (Pennsylvania), Professor of Economics (1935-1935).*
Everett, Gordon Dale, B.Des., Assistant Professor of Architecture (1958-1965).
Everett, Paul Harrison, Ph.D., (Purdue), Professor (Soils Chemist), IFAS, South Florida Field Laboratory (1958-1968).
Fabrick, Arthur L., M.S.W., Assistant Professor of Social Work (1959-1967).
Fagen, William Frederick, M.S., Professor of Electrical Engineering (1947-1957).
Fahien, Raymond W., Ph.D. (Purdue), Professor of Chemical Engineering (1964-1964).
Fain, John Tyree, Ph.D. (Vanderbilt), Professor of English (1947-1951).
Fairbanks, Charles H., Ph.D. (Michigan), Professor of Anthropology and Chairman (1963-1963).
Fairchild, Alexander Graham Bell, Ph.D. (Harvard) Professor of Entomology, Gorgas Memorial Lab., Canal Zone (1968-1968).
Fairing, Robert Lewis, Ph.D. (Pittsburgh), Director, Division of Continuing Education (1947-1965).
Faith, Mark E., M.D., (University of Chicago), Intern in Surgery (1969-1969).
Faith, Robert Earl, Jr., D.V.M. (Texas A&M) Postdoctoral Fellow in Comparative Medicine (1968-1968).
Fallgater, Michael Byers, Ph.D. (Northwestern), Interim Assistant Professor of Chemistry (1969-1969).
Farber, Erich Alexander, Ph.D. (Iowa), Professor of Mechanical Engineering (1954-1954).
Faricy, John Hartnett, Ph.D., (Minnesota), Assistant Professor of Marketing (1966-1966).
Farler, Carl, B.S., Interim Assistant in Agricultural Economics, Agricultural Extension Service (1966-1966).
Farley, Robert Joseph, J.S.D. (Yale), Professor of Law (1961-1964).
Farris, Glenn Aloysius, M.A.T., Assistant Dean for Student Development (1962-1969).
Farris, Patricia B., B.A., (University of Alabama), Research Assistant in Psychiatry (1969-1969).
Faulkner, Norman A., J.D. (Florida), Associate Professor of Law (1969-1969).
Fearn, Richard Lee, Ph.D. (Florida), Assistant Professor of Aerospace Engineering (1965-1965).
Fearn, Robin Arnold Craig, M.S., Assistant Director of Libraries (1969-1969).
Fearney, Edward Maurice, B.Arch., Associate Professor of Architecture (1946-1958).*
Feaster, John Pipkin, Ph.D. (North Carolina), Professor of Animal Science and Biochemist, Agricultural Experiment Station (1951-1968).
Feeley, Carolyn P., M.L.S., Assistant Librarian, Health Center Library (1968-1968).
Feinberg, Robert M., B.S.B.A., Associate University Examiner (1962-1966).
Feldherr, Carl M., Ph.D. (University of Pennsylvania) Assistant Professor of Anatomical Sciences (1967-1967).

Feldman, Albert William, Ph.D., (Minnesota), Professor (Plant Pathologist), IFAS, Citrus Experiment Station (1958-1958).*
Fellers, John D., M.S., Assistant Director, Shands Teaching Hospital and Clinics; Assistant Professor of Health and Hospital Administration, (1958-1966).
Fellers, Paul Joseph, Ph.D., (Michigan), Assistant Professor (Assistant Food Technologist), IFAS, FCC, Citrus Experiment Station (1965-1965).
Felman, Alvin H., M.D., (University of Cincinnati), Assistant Professor in Pediatric Radiology (1969-1969).
Fenn, Henry Anderson, LL.B., (Yale) Professor of Law and Dean Emeritus, College of Law (1948-1959).
Fennell, Robert Samuel III, M.D., (University of Florida), Resident in Pediatrics (1968-1969).
Ferguson, Edward N., Ph.D. (Oregon), Assistant Professor of Mathematics (1967-1967).
Ferguson, Emmet F., Jr., M.D. (Medical College of Georgia), Clinical Assistant Professor in Surgery (1969-1969).
Ferguson, Raymond Carl, M.Ed., Assistant Professor of Education (1962-1962).
Ferguson, Sarah Caroline, M.S. in L.S., Instructor-Librarian, P. K. Yonge Laboratory School (1951-1962).*
Ferguson, William M., M.A., Interim Instructor, Philosophy, (1969-1969).
Fieldbinder, William Clifford, B.B.A., C.P.A., Director of Internal Control (1969-1969)
Fields, Sandra E., MN, Instructor, College of Nursing (1969-1969).
Fillmer, Henry T., Ph.D. (Ohio), Associate Professor of Education (1967-1967).
Fine, Stuart L., M.D., (University of Maryland), Resident in Ophthalmology (1969-1969).
Finger, Kenneth Franklin, Ph.D. (Wisconsin), Professor and Dean, College of Pharmacy (1968-1968).
Finlayson, Birdwell, M.D. (Chicago) Assistant Professor in Surgery (1967-1967).
Finley, George Alexander, B.S., Major, U.S. Army, Assistant Professor of Military Science (1967-1967).
Finley, Martha Claudette, M.S., Assistant Professor of Physical Therapy, (1969-1969).
Finley, William W., Ph.D., (University of Oklahoma), Assistant Professor of Psychology in Psychiatry and Assistant Professor of Psychology and Clinical Psychology (1969-1969).
Fiorino, John Angelo, Ph.D. (Iowa State), Interim Assistant Professor of Chemistry (1969-1969).
Fischlschweiger, Werner, Ph.D. (Graz), Associate Professor, Division of Oral Pathology, College of Dentistry, (1969-1969).
Fisher, Bradley, Ed.D. (Florida), Interim Assistant Professor of Comprehensive Logic (1969-1969).
Fisher, Francine E., M.S., Assistant Professor (Assistant Plant Pathologist), IFAS, Citrus Experiment Station (1946-1946).
Fisher, Norma Paige, M.A. in Ed., Assistant Professor of Physical Therapy (1964-1968).
Fisher, Waldo R., M.D. (University of Pennsylvania), Assistant Professor of Medicine (1965-1965).
Fiskell, John Garth Austin, Ph.D. (McGill), Professor of Soils and Biochemist, Agricultural Experiment Stations (1951-1961).
Fitzgerald, Lawrence T., M.S., (University of Florida), Research Associate in Radiology (1964-1969).
Flagg, Richard Sinclair, M.E.E., Associate in Research, Astronomy (1966-1969).
Flam, John Donald, Ph.D., (New York University), Associate Professor of Art (1966-1969).
Flanigan, Frank McChesney, M.S., M.E., Professor of Mechanical Engineering (1947-1966).*
Flannery, Merle Elizabeth, Ed.D. (Pennsylvania State), Assistant Professor of Education (1966-1966).
Fleming, Arthur R., M.D., (Temple University), Resident, trainee, and Assistant in Psychiatry (1969-1969).
Fleming, Charlie R., M.D., (University of North Carolina), Intern in Medicine (1969-1969).

Flemion, Philip Frederick, M.A., Assistant Director, Center for Latin American Studies (1962-1962).
Flesher, Carol K., Ph.D. (Florida), Counseling Psychologist, University Counseling Center, Assistant Professor of Psychology (1965-1965).
Flowers, John Wilson, Ph.D. (Virginia), Professor of Physics (1947-1953).
Fluck, Richard Conrad, Ph.D. (North Carolina State), Associate Professor (Assoc. Agricultural Engineer) IFAS, (1965-1969).
Fluker, Sam Spruill, Ph.D. (University of Hawaii) Assistant Professor (Assistant Entomologist) Big Bend Horticulture Laboratory, IFAS, (1969-1969).
Fontana, John, Jr., M.D. (Georgetown University) Resident in Obstetrics and Gynecology (1968-1968).
Forbes, Ina Claire, M.M., Interim Instructor of Music (1968-1968).
Forbes, Richard B., Ph.D., (Pennsylvania State), Associate Professor (Associate Soils Chemist), IFAS, Central Florida Experiment Station (1948-1967).
Ford, Ernest Sidney, Ph.D. (Chicago), Professor of Botany (1947-1949).
Ford, Harry W., Ph.D., (Ohio State), Professor (Horticulturist), IFAS, Citrus Experiment Station (1950-1962).*
Ford, Roger Davis, M.A.S., Interim Assistant Professor (Assistant Extension Forester), IFAS (1969-1969).
Forizs, Lorant, M.D. (Ferencz Jozsef, Hungary), Clinical Associate in Psychiatry (1965-1965).
Forrester, Donald J., Ph.D., (California) Assistant Professor of Veterinary Science and Division of Biological Sciences. (1969-1969).
Forsman, Marion Edwin, Ph.D. (Iowa State), Professor of Electrical Engineering; Director of Engineering External Programs (1955-1968).
Foscue, Henry A., M.D., (Duke University), Resident in Medicine (1969-1969).
Foster, Robert Estill, M.Ed., Assistant Professor of Music (1964-1965).
Fouse, Claude Andrew, M. M., Teacher, P. K. Yonge Laboratory School, (1967-1967).
Fouse, Sarah Baird, M.M., Interim Instructor of Music (1968-1968).
Fouts, Everett Lincoln, Ph.D. (Iowa State), Professor of Dairy Science and Dairy Technologist, Agricultural Experiment Stations (1940-1966).
Fox, Jackson Leland, Ph.D. (University of Minnesota), Assistant Professor of Environmental Engineering (1968-1968).
Fox, Lauretta Ewing, Ph.D. (Illinois), Associate Professor of Pharmacology (1949-1955).
Fox, William McNair, Ph.D. (Ohio State), Professor of Industrial Relations and Management (1954-1963).
Franke, Donald Edward, Ph.D. (Texas A&M), Assistant Animal Geneticist, Agricultural Experiment Station (1968-1968).
Frakes, Joyce M., M.A., Interim Assistant Professor of German (1967-1967).
Francis, Virginia Gladys, M.A. in L.S., Assistant Librarian, Reference and Bibliography (1964-1964).
Fraser, Donald James, M.D., Clinical Associate in Pediatrics (1968-1968).
Frazer, Percy Warner, M.F., Associate Professor of Forest Management and Associate Forester, Agricultural Experiment Stations (1936-1949).*
Frazer, William Johnson, Ph.D. (Columbia), Professor of Economics (1957-1968).*
Frazer, Winifred Loesch, Ph.D. (Florida), Associate Professor of English, Adviser (1955-1964).
Fredericks, Carl, M.B.A., Interim Instructor of Finance (1968-1968).
Fredley, Marilyn E., B.A., Research Assistant in Psychiatry (1969-1969).
Freeland, James Jackson, J.D. (Florida), Professor of Law (1957-1963).
Freels, John William, Ph.D. (University of California at Riverside), Assistant Professor of Political Science (1968-1968).
Freeman, Charles Ensor, M.S., Assistant in Agronomy, Agricultural Extension Service (1967-1967).
Freeman, Eleanor F. L., R.N., Interim Instructor, Manager of Operating Room (1966-1966).
Freeman, George Roland, M.S.A., Assistant Director, Agricultural Experiment Stations (1950-1967).
Freeman, James V., M.D., (University of Tennessee), Instructor in Surgery (1967-1969).

Freeman, John R., Ph.D. (Georgia Tech), Director of Health Systems Research Division; Associate Professor of Industrial Systems Engineering and of Health and Hospital Administration, (1966-1968).
Freeman, Sallie B., Ph.D., (Emory), Instructor in Anatomical Science (1968-1969).
Freeman, Thomas Edward, Ph.D. (Louisiana State), Professor (Plant Pathologist) Institute of Food and Agricultural Sciences (1956-1968).
Freeman, Watson Louis, M.S.E., Assistant Professor of Mechanical Engineering (1953-1967).
Fregly, Melvin J., Ph.D. (Rochester) Professor of Physiology and Assistant Dean for Graduate Education in the Medical Sciences (1956-1968).
French, Richard E., Ph.D., (Oklahoma), Assistant Professor of Economics (1967-1967).*
French, William John, Ph.D., (New York State, Assistant Professor (Assistant Plant Pathologist), IFAS, Big Bend Horticultural Laboratory (1967-1967).
Freund, Gerhard, M.D. (Goethe University, Germany), Assistant Professor of Medicine (1963-1964).
Fried, Melvin, Ph.D. (Yale) Professor of Biochemistry (1956-1967).
Friel, Janette, M.S., Research Assistant in Psychiatry (1966-1966).
Fristoe, Charles Wesley, Ph.D. (Illinois), Associate Professor of Economics (1950-1955).
Fritz, George J., Ph.D. (Purdue), Associate Professor of Botany and Associate Plant Physiologist, Agricultural Experiment Stations (1960-1964).
Frossard, Robert T., Ph.D. (Michigan University), Assistant Professor of Education (1968-1968).
Fry, Jack Leroy, Ph.D. (Purdue), Associate Professor of Poultry Science and Associate Poultry Products Technologist, Agricultural Experiment Stations (1964-1964).
Fry, Richard M., M.D., (Temple University), Clinical Assistant in Orthopedics (1960-1967).
Fuller, David Dowd, M.Ed., Baseball Coach and Assistant Football Coach (1946-1946).
Fuller, Earl W., Jr., M.D., (Medical College of Virginia), Resident in Medicine (1968-1969).
Fuller, Thomas J. M.D., (University of Northwest), Intern in Medicine (1969-1969).
Funk, Arthur Layton, Ph.D. (University of Chicago), Professor of Humanities and History (1946-1962).*
Funkhouser, Jack Sherrick, M.M., Director, Teaching Resources Center and Assistant Professor of Humanities (1961-1965).
Furlong, Robert E., LL.M. (Yale), Professor of Law (1966-1966).
Furlow, Leonard T., Jr., M.D. (Washington University), Assistant Professor of Plastic Surgery (1965-1967).
Furlow, Leonard T., Sr., M.D., (Emory), Clinical Professor in Neurosurgery (1969-1969).
Furman, Thomas deSaussure, M.S.C.E., Professor of Environmental Engineering and Acting Chairman of the Department; Professor of Civil Engineering (1951-1968).
Furr, Charles Gilmore, LL.B (Wake Forest), Director of Development (1969-1969).
Gabbay, Edmond J., Ph.D. (Columbia), Associate Professor of Chemistry (1969-1969).
Gadsden, Thomas, M. Ed., Interim Teacher, P. K. Yonge Laboratory School (1967-1967).
Gaffney, Jerome Joseph, M.S., Assistant in Agricultural Engineering, USDA, Agricultural Experiment Stations (1966-1966).
Gagliano, Theodore E., M.D. (Columbia), Clinical Associate in Psychiatry (1965-1965).
Gahan, James B., M.S., Professor of Entomology and Administrative Officer, USDA, Entomology Research Laboratory (1963-1963).
Gaines, Carolyn Jane, M.S., Assistant Librarian, Catalog (1965-1965).
Gaitanis, Louis Andrew, M.A., J.D. (Florida), Associate Professor of Real Estate and Urban Land Studies (1946-1951).
Gaither, Robert Barker, Ph.D. (University of Illinois), Professor of Mechanical Engineering and Chairman of Department (1962-1966).

Gallardo, Annie S., M.D. (Philippines) Resident in Pathology (1967-1967).
Gallup, Gordon A., Ph.D. (Kansas), Visiting Research Professor of Chemistry (1967-1967).
Gamble, John Francis, Ph.D. (Rutgers), Interim Associate Professor of Environmental Engineering (1968-1968).
Gammon, Nathan, Jr., Ph.D. (Ohio State), Soils Chemist, Agricultural Experiment Stations (1946-1946).
Gannon, Michael Valentine, Ph.D. (Florida), Associate Professor of Religion (1967-1969).
Gano, Ovid Raymond, B.E.E., Head, Bioelectronic and Instrument Shop and Assistant Professor of Radiology (1944-1970).*
Garber, Grace S., Asistant in Occupational Therapy, (1969-1969).
Garber, Malcolm, Ph.D. (University of Southern California), Assistant Professor of Education (1968-1968).
Garcia-Bengochea, Francisco, M.D. (Havana and Tulane), Associate Professor of Surgery (1962-1962).
Garcia-Menocal, Narciso, M.Arch., Instructor of Architecture (1966-1966).
Gardner, Charles Hugh, Ed.D. (Indiana), Assistant Professor of Education, (1967-1967).
Garg, Lal C., Ph.D., (University of Florida), Research Associate in Pharmacology and Therapeutics (1969-1969).
Garlington, James C., M.D. (Yale University), Clinical Associate in Surgery (1965-1966).
Garnsey, Stephen Michael, Ph.D. (California), Associate Professor (Assoc. Plant Pathologist), USDA, IFAS, (1969-1969).
Garrard, Leon A., Ph.D. (Florida), Interim Research Associate, Agricultural Experiment Stations (1963-1963).
Garrett, Edward Robert, Ph.D. (Michigan State), Graduate Research Professor of Pharmacy (1961-1961).
Garrett, Richard Edward, Ph.D. (Virginia), Associate Professor of Physics (1963-1963).
Garrett, Robert, B.S.E.E., (Pratt Institute), Academic Professional I of Psychiatry (1967-1968).
Garside, W. Blake, M.D. (St. Louis), Resident in Surgery (1967-1967).
Garvin, Jewel H., B.S. in L.S., B.A., Assistant Librarian, Health Center Library (1960-1964).
Garza, Michael Kaye, M.S., Counselor, Division of Housing (1968-1968).
Gasche, Robert Thurston, M.Ed., Teacher, P. K. Yonge Laboratory School (1968-1968).
Gascho, Gary John, Ph.D., (Michigan State), Assistant Professor (Assistant Soil Chemist), IFAS, Everglades Experiment Station (1968-1968).
Gasset, Antonio, M.D. (Boston), Resident in Ophthalmology (1967-1967).
Gater, Roger Allen, Ph.D. (Purdue), Assistant Professor of Mechanical Engineering (1968-1968).
Gates, Roger H., M.B.A., Interim Instructor of Marketing (1969-1969).
Gay-Crosier, Raymond, Docteur-ès-Lettres (Berne), Associate Professor of French (1967-1967).
Gebhardt, Bryan, Ph.D., (Tulane), Assistant Professor of Pathology (1969-1969).
Gehan, Frederick Edward, M.A.E., Associate Professor of English (1946-1955).
Geiger, William H., M.D., Clinical Associate in Psychiatry (1968-1968).
Geiss, Joseph P., M.D. (Syracuse University), Instructor in Radiology (1969-1969).
Geithman, David T., Ph.D. (Florida), Assistant Professor of Economics (1967-1967).
Genung, William Gordon, M.S., Associate Professor (Associate Entomologist), IFAS, Everglades Experiment Station (1949-1958).
Geoghegan, Patrick Martin, Ph.D. (Illinois), Assistant Professor of English (1967-1968).
Georg, James Gonder, B.S., Assistant Meteorologist, USWB, Weather Forecasting Service (1952-1952).
George, Theodore Samuel, Ph.D. (Duke), Professor of Electrical Engineering (1938-1956).*
Geraldson, Carroll Morton, Ph.D., (Wisconsin), Professor (Soils Chemist), IFAS, Gulf Coast Experiment Station (1951-1969).
Gerard, Diana Kathleen, M.A., Interim Assistant Professor of Italian (1969-1969).

Gerardo, Alexander, M.S., Assistant Professor of Mathematics, Adviser (1968-1968).
Gerber, John Francis, Ph.D. (Missouri) Professor (Climatologist) IFAS, (1960-1969).
Gessner, Ira, M.D. (Vermont), Associate Professor in Pediatrics (1960-1967).
Getzen, Samuel Pace, Manager, Campus Shop and Bookstore (1960-1960).
Giannini, Ralph V.; M.A., Interim Instructor in Social Sciences, (1969-1969).
Giannini, Richard, B.S., Assistant Sports Publicity Director (1966-1966).
Gibbs, Kenneth Charles, Ph.D., (Oregon State University), Assistant Professor of Agricultural Economics and Assistant Professor of Environmental Engineering, IFAS and Engineering (1969-1969).
Giblin, Margaret Kelly, M.S., Interim Instructor of Education, (1969-1969).
Gibson, Robert L., M.D. (Medical College of Virginia) Resident in Anesthesiology (1968-1968).
Gibson, William J., M.D., Clinical Associate in Ophthalmology (1968-1968).
Gifford, George Edwin, Ph.D. (Minnesota) Professor of Microbiology (1957-1968).
Gilbert, Carter Rowell, Ph.D. (Michigan), Assistant Curator of Ichthyology, Florida State Museum; Assistant Professor of Zoology (1961-1963).
Gilbert, Irwin H., Ph.D. (Ohio State), Professor of Entomology and Assistant Director, USDA, Entomology Research Laboratory (1963-1963).
Gilbert, Joel Sterling, Ph.D. (Oklahoma), Assistant Professor of Mechanical Engineering (1965-1965).
Gilbraith, Kenneth Marshburn, M.S.A., Vegetable Marketing Specialist, Agricultural Extension Service (1957-1959).
Gilkison, Betty Gay, M.S., Interim Assistant Professor of Professional Physical Education and Recreation (1969-1969).
Gillette, Jay Michael, M.F.A., Assistant Professor of Speech (1968-1968).
Gilliland, Charles H., M.A., Interim Instructor in English (1969-1969).
Gills, James Pitzer, Jr., M.D., Clinical Associate in Ophthalmology (1968-1968).
Gilman, Steve H., M.D., (University of Florida), Clinical Instructor of Surgery (1966-1969).
Gipson, Amos C., M.D. (Vanderbilt), Clinical Instructor of Medicine (1968-1969).
Glassman, Armand B., M.D. (Georgetown University), Assistant Professor of Pathology (V.A.), (1969-1969).
Gleason, Larry N., Ph.D., (University of North Carolina), Research Associate in Pharmacology and Therapeutics (1969-1969).
Gleim, James Kilmer, Ph.D. (Pennsylvania), Assistant Professor of Astronomy (1966-1966).
Glenn, John C., Ph.D. (Oklahoma), Associate Professor of Animal Science (Associate Meat Scientist), IFAS (1968-1969).
Glenn, John K., B.S., Systems Analyst, Shands Teaching Hospital and Clinics (1966-1966).
Glenn, Peggy Southerland, M.Ed., Counselor, Division of Housing (1969-1969).
Glicksberg, Mandell, LL.M. (New York University), Professor of Law (1953-1959).
Godbey, Asa L., M.D. (Florida), Resident in Psychiatry (1967-1968).
Goddard, Frederick Owen, Ph.D. (Duke), Assistant Professor of Economics (1966-1966).
Goddard, Ray Everett, Ph.D. (Texas A. & M.), Associate Professor of Forestry and Agronomy, and Associate Geneticist, Agricultural Experiment Stations (1959-1964).
Godwin, Dwight S., Photographic Services Supervisor (1964-1964).
Godwin, Grant Murray, M.Ag., Associate Professor (Associate State 4-H Club Agent),
Goffman, Irving Jay, Ph.D. (Duke), Professor of Economics (1959-1968).
Goin, Coleman Jett, Ph.D. (Florida), Professor of Biological Sciences and Zoology; Adviser (1942-1956).*
Going, Robert E., D.D.S. (Illinois), Associate Professor and Chairman, Division of Biomaterials, College of Dentistry, (1969-1969).
Goldberg, Louis, Litt.D. (University of Melbourne), Visiting Professor of Accounting (1970-1970).
Golden, Terry D., M.D., (University of North Carolina), Resident in Medicine (1968-1969).
Goldhurst, William, Ph.D. (Tulane), Associate Professor of Humanities (1964-1969).*

Goldhurst, William, Ph.D. (Tulane), Assistant Professor of Humanities (1964-1964).
Goldman, Jacquelin Roberta, Ph.D. (Illinois), Associate Professor of Psychology and Clinical Psychology, (1961-1969).
Goldman, Nelson C., M.D. (Georgia), Resident in Surgery (Otolaryngology) (1966-1967).
Goldstein, Amy S., M.S., Intern Instructor in Comprehensive Logic; Counselor, Division of Housing (1967-1969).
Goldstein, Jonathan Leopoid, M.Ed., Counselor, Division of Housing (1968-1968).
Gonyea, Edward Francis, M.D. (Georgetown), Assistant Professor of Medicine (1967-1967).
Good, Lee Edward, B.S., Lieutenant Colonel, U.S. Army, Assistant Professor of Military Science (1968-1968).
Goodwin, Jerrold Ralph, Ph.D. (California), Assistant Professor of Mathematics (1969-1969).
Gordon, Ira Jay, Ed.D. (Columbia), Professor of Education (1956-1964).
Gordon, Michael Wallace, J.D. (Connecticut) Associate Professor of Law (1968-1968).
Gordon, Richard E., M.D. (Michigan), Associate Professor of Psychiatry (1967-1967).
Gordon, Ronald Jeffrey, Ph.D. (Princeton), Assistant Professor of Chemical Engineering (1969-1969).
Gorenberg, Richard, M.D. (Duke) Resident in Obstetrics and Gynecology (1968-1968).
Gorman, Benjamin L., Ph.D. (Tulane), Associate Professor of Sociology (1968-1968).
Goslinga, Cornelis Ch., Ph.D. (Nimejen University), Visiting Interim Professor of History (1967-1967).
Gotti, Edward W., M.D., (University of Florida), Resident in Medicine (1969-1969).
Gouck, Harry Kydd, M.S., Assistant Professor of Entomology (1966-1966).
Gould, Robert William, Ph.D. (Florida), Associate Professor of Metallurgical and Materials Engineering (1964-1968).
Gowan, Joan Shiffman, M.A., Assistant Librarian, Special Collections (1966-1966).
Gowan, Samuel Charles, M.A., Interim Instructor in Humanities (1967-1969).
Graeffe, Arnold Didier, Ph.D. (Berlin), Professor of Humanities (1948-1963).
Graeffe, Lotte B., Ph.D. (Florida), Assistant Professor of English (1965-1966).
Graham, Henry H., M.D. (Cornell) Clinical Instructor in Medicine (1959-1959).
Graham, Margaret Nicol, M.M., Interim Instructor of Music (1969-1969).
Graham, Mary Elizabeth, M.A.E., Assistant Professor of Physical Education (1964-1966).*
Graham, Raymond Wilfred, B.Arch., Assistant Professor of Architecture (1957-1957).*
Graham, Robert B., Ph.D., (Texas Technical), Assistant Professor of Psychology and Research Associate in Surgery (1967-1969).
Graham, Thomas Aloysius, Jr., B.S., Assistant Registrar (1959-1963).
Graham, Walter B., M.D. (Florida), Resident in Medicine (1967-1967).
Grainger, David A., D.D.S. (Northwestern), Professor and Chairman, Division of Operative Dentistry, College of Dentistry, 1969-1969.
Gramling, Lea Gene, Ph.D. (Florida), Professor of Pharmaceutical Chemistry and Chairman of the Department (1946-1959).
Granade, Mary E., M.S., Research Assistant in Medicine (1967-1967).
Grand, John Louis Rochon, M.A., Professor of Architecture (1937-1947).
Grant, Louis Gerard, B.S., Senior Research Assistant in Engineering in Nuclear Engineering (1960-1965).
Grantham, William J., Jr., M.S.E., Assistant Professor of Civil Engineering (1959-1963).*
Grater, Harry Allen, Ph.D. (Penn. State), Director, Senior Counseling Psychologist, University Counseling Center; Associate Professor of Psychology (1965-1965).
Graumann, Günter, Ph.D. (Hannover), Visiting Assistant Professor of Mathematics (1969-1969).
Graves, Howard Bradley, Jr., Ph.D., (Washington), Research Associate, IFAS, Citrus Experiment Station (1962-1962).
Graves, Samuel Ray, B.A., Director of Athletics (1960-1969).

Gray, John Lewis, D.F. (Duke), Associate Professor, (Chairman of Forestry Department and Director of School of Forestry), IFAS (1963-1963).
Graybeal, Robert T., M.D., (Harvard), Intern in Medicine (1969-1969).
Green, Alex Edward Samuel, Ph.D. (Cincinnati), Graduate Research Professor of Physics; Graduate Research Professor of Aerospace Engineering (1963-1963).
Green, Richard Louis, Ph.D. (Illinois), Assistant Professor of Speech (1967-1969).
Green, Victor Eugene, Jr., Ph.D. (Purdue), Professor (Agronomist), IFAS, Everglades Experiment Station (1951-1965).
Greenawalt, Thomas Charles, M.Ag., Assistant Professor (Assistant State 4-H Club Agent), IFAS (1962-1966).
Greene, Calvin Clay, M.S.M.E., Director of Physical Plant (1950-1950).
Greene, Gerald Lee, Ph.D., (Oregon State), Assistant Professor (Assistant Entomologist, IFAS, Central Florida Experiment Station (1966-1966).
Greene, Robert Edward Lee, Ph.D. (Cornell), Professor of Agricultural Economics and Agricultural Economist, Agricultural Experiment Stations (1948-1948).
Greenfield, Mariam T., M.A., Interim Instructor in English (1969-1969).
Greenier, Harold J., M.D. (Georgetown University), Assistant Professor of Medicine (1968-1969).
Greenlee, Theodore, M.D. (Northwestern), Assistant Professor in Orthopedic Surgery and Anatomical Sciences (1966-1967).
Greenman, John Roosevelt, J.D. (Florida), Professor of Agricultural Economics and Agricultural Economist, Agricultural Experiment Station (1939-1945).
Greenwood, Gordon E., Ed.D. (Indiana), Assistant Professor of Education (1967-1967).
Greer, Melvin, M.D. (New York), Professor of Medicine and Pediatrics, and Chief, Division of Neurology (1961-1967).
Gregg, James Henderson, Ph.D. (Princeton), Professor of Zoology (1951-1963).*
Grierson, William, Ph.D., (Cornell), Professor (Horticulturist), IFAS, Citrus Experiment Station (1952-1965).
Griffin, Dana, III, Ph.D. (Tennessee), Assistant Professor of Biological Sciences and Botany (1967-1967).
Griffin, Nancy Claire, M.S., Teacher, P. K. Yonge Laboratory School (1967-1967).
Griffis, Carolyn Stallings, Ph.D. (Florida), Assistant Professor of Social Sciences, Adviser (1965-1969).
Griffith, John L., Ed.D. (Oklahoma State), Associate Professor of Journalism and Communications (1969-1969).
Griffith, Mildred Mason, Ph.D. (California), Professor of Biological Sciences and Botany (1950-1963).
Griggs, Harry H., Ph.D. (Iowa), Professor of Journalism and Communications (1958-1967).
Griggs, Thomas M., M.D. (University of Virginia), Resident in General Surgery (1968-1969).
Grigsby, John R., M.A., Assistant Professor of Music (1967-1967).
Grigsby, Shaw Earl, Ph.D. (Cornell), Professor (Extension Training Specialist), IFAS, (1953-1967).
Grimm, Charles, Jr., B.B.C. Instructor in Building Construction (1967-1967).
Grinter, Linton E., Ph.D. (Illinois); LL.D., (Arizona State University at Tempe); D.Sc. (University of Akron), Professor of Engineering and Chairman of Self Study (1952-1969).
Grissom, Eugene Edward, M.F.A., Professor of Art and Chairman of Department of Art (1953-1966).
Grooms, Donald A., M.A., Assistant Professor of Journalism and Communications (1962-1964).
Grossbart, Sanford L., M.B.A., Interim Instructor of Marketing (1969-1969).
Grossman, Melvyn L., M.D. (Geneva) Resident in Psychiatry (1968-1968).
Grossman, Thelma F., M.S., Academic Professional I in Psychology (Social Work) (1968-1968).
Groth, Earl C., M.M.E., Assistant Professor of Music (1967-1967).
Gubbins, Keith Edmund, Ph.D. (London), Associate Professor of Chemical Engineering (1962-1968).
Guedes, Beny L., M.D., (University of Florida), Intern in Pediatrics (1969-1969).
Guerra, Jorge Roland, M.D. (Havana), Resident in Psychiatry (1968-1968).

Guerrero, Manuel, M.D. (Univ. of Santa Domingo), Clinical Associate in Psychiatry (1965-1965).
Guertin, Wilson H., Ph.D. (Michigan State), Professor of Education (1960-1968).*
Guinagh, Barry Joseph, Ph.D., (Florida), Interim Assistant Professor of Education 1968-1968).
Gull, Dwain D., Ph.D. (Cornell), Associate Horticulturist, Agricultural Experiment Stations (1958-1967).
Gurin, Samuel, Ph.D., (Columbia University), Professor of Biochemistry, Division of Biological Sciences (1969-1969).
Guttinger, Helen Ireland, B.S., Teacher, P. K. Yonge Laboratory School (1968-1968).
Guttman, Robert Jay, LL.M., (Harvard), Assistant Professor of Law (1967-1967).*
Guy, Albert Glasgow, Ph.D. (Carnegie Tech.), Professor of Metallurgical and Materials Engineering (1960-1960).
Guy, Charles Eugene, M.S., Interim Instructor of Economics (1966-1966).
Guy, Clifford R., M.D., (New Jersey College of Medicine), Resident in Medicine (1969-1969).
Guzman, Victor L., Ph.D., (Cornell), Professor (Horticulturist), IFAS Everglades Experiment Station.*
Habeck, Dale Herbert, Ph.D. (North Carolina State), Associate Entomologist, Agricultural Experiment Stations (1963-1967)
Hackett, Raymond L., M.D. (Vermont) Associate Professor of Pathology (1962-1968).
Hackler, Ruth Nadine, M.S., Assistant Professor (Extension Consumer Education Specialist), IFAS, (1969-1969).
Hadley, Rufus Tilmon, B.S., Director, Administrative Computing Center (1960-1969).
Hadley, William P., M.D., Clinical Associate in Pediatrics (1968-1968).
Hadlock, Edwin Harold, Ph.D. (Cornell), Professor of Mathematics (1948-1953).
Haggerty, John Joseph, M.A., Interim Assistant Professor of English (1967-1967).
Hahn, Gordon S., M.D. (Tulane) Resident in Surgery (1968-1968).
Hahn, William M.A., Counselor, Division of Housing (1967-1967).
Haines, Lewis Francis, Ph.D. (University of Michigan), Professor of Humanities and Comprehensive Logic (1941-1946).
Hale, James Pierce, M.S., Associate Professor of Music (1957-1965).
Hale, Lester Leonard, Ph.D. (Louisiana State), Vice President for Student Affairs and Professor of Speech (1935-1967).*
Hall, C. B., Ph.D. (Cornell University), Professor (Horticulturist), IFAS (1950-1964).
Hall, Everette E., Jr., Ph.D. (Florida), Research Associate in Student Health, Clinical Psychology Project Coordinator, Associate Professor of Psychology (1962-1962).
Hall, Jack, Assistant Football Coach, (1969-1969).
Hall, Linda Thornton, M.A., Assistant Professor of Physical Education (1969-1969).
Hall, Robert M., M.D. (University of Michigan), Resident in Radiology (1969-1969).
Hall, Roberta Halcomb, M.S., Associate Professor (Extension Home Furnishings Specialist), IFAS, (1959-1969).
Halperin, Don Akiba, Ph.D. (Virginia Polytechnic Institute), Professor of Building Construction (1953-1965).
Halsey, Lawrence Henry, M.S.A., Associate Horticulturist, Agricultural Experiment Station (1948-1968).
Hamacher, Howard Brockman, M.Arch., Associate Professor of Architecture (1956-1968).
Hamilton, Dan M., Ph.D. (Kent State) Postdoctoral Fellow, Center for Neurobiological Sciences (1968-1968).
Hammer, Lowell Clark, Ph.D. (Florida), Assistant Professor of Communicative Disorders and Speech (1963-1965).
Hammer, Marie Speyrer, MHEcEd, Interim Assistant Professor (Interim Extension Home Economist), IFAS, (1969-1969).
Hammer, Richard Hartman, Ph.D. (Arizona), Assistant Professor of Pharmaceutical Chemistry (1963-1963).
Hammond, Eugene Ashby, Ph.D. (North Carolina), Professor of History and Social Sciences (1946-1955).

Hammond, Luther Carlisle, Ph.D. (Iowa State), Professor of Soils and Soils Physicist, Agricultural Experiment Stations (1950-1964).
Hampton, Archibald S., M.D. (Emory) Resident in Psychiatry (1968-1968).
Hanish, Carol J., B.A., Research Assistant in Psychiatry (1969-1969).
Hanks, Robert William, Ph.D., (Chicago), Assistant Professor (Assistant Plant Physiologist), IFAS, Citrus Experiment Station (1955-1955).
Hanna, Paul Lamont, Ph.D. (Stanford), Professor of History and Social Sciences (1939-1946).
Hanna, Thomas Louis, Ph.D. (Chicago), Professor and Chairman of Department of Philosophy (1965-1965).
Hannum, John Ballard, M.Ed., Instructor, P. K. Yonge Laboratory School (1958-1962).
Hanrahan, Robert Joseph, Ph.D. (Wisconsin), Associate Professor of Chemistry (1958-1966).
Hanson, Harold Palmer, Ph.D. (Wisconsin), Dean of the Graduate School and Professor of Physics (1969-1969).
Hanson, Karl B., M.D. (Chicago) Clinical Associate Professor (JHEP) in Medicine (1968-1968).
Hanson, Thomas Hubbard McHatton, Ph.D. (Georgia), Assistant Professor of Mathematics (1968-1968).
Hardcastle, Brian, M.D. (Leeds, England), Assistant Professor of Surgery (Otolaryngology) (1966-1966).
Hardcastle, Heather S., M.D. (Leeds Medical School, England) Postdoctoral Fellow in Pharmacology (1968-1968).
Harden, Richard Clayton, Ph.D. (Florida), Professor of Electrical Engineering; Resident Director, GENESYS—Orlando (1967-1967).
Harder, Jayne Crane, Ph.D. (Florida), Associate Professor of English and Speech, Interim Director English Language Institute (1970-1970).
Harding, Charles I., Ph.D. (Florida), Adjunct Assistant Professor, Biological Sciences (1968-1968).
Hardman-de-Bautista, M. J., Ph.D. (Stanford), Interim Associate Professor of Anthropology (1968-1968).
Hardy, Charles A., M.D., (University of Missouri), Resident in Anesthesiology (1969-1969).
Hardy, Ned M., M.D. (Florida), Resident in Pathology (1967-1967).
Harkness, Roy Wendell, Ph.D., (California), Associate Professor, (Associate Chemist), IFAS, Sub-Tropical Experiment Station (1945-1955).
Harlan, William Edward, M.A.E., Assistant Professor of Physical Education and Swimming Coach (1949-1954).
Harland, Ernest Clayton, D.V.M. (Oklahoma State), Assistant Professor (Assistant Veterinarian), Institute of Food and Agricultural Sciences (1969-1969).
Harms, Robert Henry, Ph.D. (Texas A. & M.), Professor and Chairman, Department of Poultry Science, Institute of Food and Agricultural Sciences (1957-1963).
Harper, Aylene Sharp, M.S., Assistant Program Director, J. Wayne Reitz Union (1966-1966).
Harper, Julia M., M.Ed., Teacher, P. K. Yonge Laboratory School (1966-1966).
Harper, Verne Lester, Ph.D. (Duke), Professor of Forestry (1966-1966).
Harrell, J. E., M.D. (Florida), Resident in Obstetrics and Gynecology (1967-1967).
Harrer, Gustave Adolphus, Ph.D. (North Carolina), Director of Libraries and Chairman of Department of Library Science (1968-1968).
Harris, Barney, Jr., Ph.D. (Oklahoma State), Associate Professor (Associate Dairy Nutritionist), IFAS (1963-1969).
Harrison, Dalton Sidney, M.S.A., Professor (Agricultural Engineer) IFAS, (1953-1968).
Harrison, Mary Nall, M.S., Assistant Professor (Extension Consumer Education Specialist), IFAS, (1963-1967).
Harrison, Thomas, M.D. (Duke) Clinical Instructor in Medicine (1967-1967).
Harrower, Molly, Ph.D. (Smith College) Visiting Professor of Psychology (1968-1969).
Hart, Jr., Kenneth Harold, J.D., (Florida) Interim Instructor, (Interim Assistant in Agricultural Economics), IFAS (1969-1969).

Hart, Thomas Alonzo Edward, Ph.D. (Michigan), Professor of Humanities (1946-1954).
Hartley, Craig Sheridan, Ph.D. (Ohio State), Associate Professor of Engineering Science and Mechanics; Associate Professor of Metallurgical and Materials Engineering (1966-1968).
Hartsfield, Charles Wayne, B.A.E., Coordinator of Special Programs, Division of Continuing Education.
Harvey, William B., A.B., Director, University Press (1967-1967).
Hash, Frank F., M.A., Associate Professor of Journalism and Communications (1967-1967).
Hass, Charles Glen, Ed.D. (Columbia), Professor of Education (1958-1958).
Hasty, Norman D., M.D. (Vanderbilt), Intern in Medicine (1969-1969).
Haulman, Stephen Russell, B.A., Counselor, Division of Housing (1968-1968).
Haupt, Charles S., B.S.P., Associate Director, Bureau of Professional Relations, College of Pharmacy (1950-1950).
Hawkins, Irvin F., M.D. (Maryland) Instructor and Special Trainee in Radiology (1968-1968).
Hawkins, Robert W., M.A., Interim Teacher, P.K. Yonge Laboratory School (1969-1969).
Hayes, Ben William, Ph.D., (Kentucky), Assistant Professor (Assistant Animal Nutritionist), IFAS, Everglades Experiment Station (1967-1967).
Hayes, Carol Virginia, M.Ed., Assistant Professor of Nursing (1957-1964).*
Hayes, Francis Clement, Ph.D. (North Carolina), Professor of Spanish (1946-1948).
Haygood, Nancy A., B.S., Assistant Director of Finance and Accounting (1958-1958).
Haynes, James W., B.S., Head Freshman Football Coach (1967-1968).
Haynes, Margaret D., M.A., Interim Teacher P. K. Yonge Laboratory School (1965-1966).*
Haynes, Richard Pierce, Ph.D. (University of Illinois), Associate Professor of Philosophy (1967-1967).
Haynie, John Dale, B.S.A., Agriculturist, Agricultural Extension Service (1947-1947).
Hayslip, Norman Calvin, BSA., Professor (Entomologist), IFAS, Indian River Field Laboratory (1943-1956).*
Hayward, Frederick Warren, Ph.D., (Cornell), Associate Professor (Associate Biochemist), IFAS, Citrus Experiment Station (1956-1956).
Hazelrigg, Robert L., M.D. (University of Illinois), Resident in Medicine (1969-1969).
Hazouri, Gerald G., M.D. (Florida) Resident in Ophthalmology (1968-1968).
Head, Henry Herbert, Ph.D. (Maryland), Assistant Professor of Dairy Husbandry and Assistant Physiologist, Agricultural Experiment Stations (1963-1963).
Heaney, James Patrick, Ph.D. (Northwestern), Assistant Professor of Environmental Engineering and Industrial and Systems Engineering (1968-1969).
Hearon, Pamela Kunsman, B.S., Assistant Professor (Assistant Librarian), IFAS, Citrus Experiment Station (1966-1967).
Hearsey, Bryan Vandiver, Ph.D. (Washington State), Assistant Professor of Mathematics (1968-1968).
Hedden, Scott Logan, M.S., Associate Professor (Associate Agricultural Engineer), IFAS, USDA, Citrus Experiment Station (1963-1968).
Heighton, Robert Herbert Jr., Ph.D. (Hawaii), Assistant Professor of Anthropology (1969-1969).
Heine, Melvin Wayne, M.D. (Duke), Assistant Professor in Obstetrics and Gynecology (1959-1963).*
Heishman, Anne F., M.S., (University of Michigan), Research Assistant in Biochemistry (1968-1969).
Held, Berel, M.D. (Tulane) Assistant Professor of Obstetrics and Gynecology (1968-1968).
Helling, John Frederic, Ph.D. (Ohio State), Assistant Professor of Physical Sciences and Chemistry (1962-1966).
Hellstrom, Ward, Ph.D. (Illinois), Associate Professor of English (1961-1967).
Heman-Ackah, Samuel M., Ph.D. (University of London), Visiting Research Associate, College of Pharmacy (1969-1969).
Hemp, Gene Willard, Ph.D. (University of Minnesota), Assistant Professor of Engineering Science and Mechanics (197-1967).

Hench, Larry Leroy, Ph.D. (Ohio State), Associate Professor of Metallurgical and Materials Engineering (1964-1968).
Henderson, Charles Alfred, Ed.D. (Florida), Assistant Professor of Education (1964-1967).*
Henderson, Frank William, M.D. (Jefferson) Clinical Assistant Professor in Medicine (1959-1959).
Henderson, Ruby Marie, M.S., Assistant Professor of Music (1963-1968).
Henderson, Tromas A., Ph.D. (Columbia University), Assistant Professor of Political Science (1965-1969).
Hendricksen, Emmaline, Ed.D. (University of Georgia), Interim Assistant Professor of Education (1968-1968).
Hendrickson, Ellwood Robert, Ph.D. (Wisconsin), Professor of Environmental Engineering (1950-1957).
Hendrickson, Rudolph, B.S., Asociate Professor (Associate Chemist), IFAS, Citrus Experiment Station (1947-1958).
Hennessey, James Thomas, M.A., Assistant to the Vice President for Student Affairs (1963-1969).
Henry, Frederick Earl, B.I.E., Assistant Industrial Engineer, USDA, Agricultural Experiment Stations (1966-1966).
Henry, George Selden, Ph.D. (Yale), Assistant Professor of History (1961-1967).
Henry, Richard A., M.D. (Johns Hopkins), Assistant Professor of Medicine (1970-1970).
Hensel, Dale Robert, Ph.D., (Rutgers), Associate Professor (Associate Soils Chemist) and Head, IFAS, Potato Investigations Laboratory (1960-1964).
Hensel, James W., Ph.D., (Iowa State), Professor of Education and Chairman, Department of Vocational, Technical and Adult Education (1969-1969).
Hentges, James Franklin, Jr., Ph.D. (Wisconsin), Professor of Animal Science and Animal Nutritionist, Agricultural Experiment Stations (1952-1966).
Herbert, Audrey, M.N., Instructor, College of Nursing (1967-1967).
Herbert, Georgia A., Health Sciences Editor, Health Center Information Services, (1959-1964).
Herbert, John Henry, M.S.A., Associate Soil Conservationist, Agricultural Extension Service, (1954-1968).
Herbert, Thomas Walter, Ph.D. (Princeton), Professor of English (1946-1951).
Herndon, Thomas Glenn, M.S.F., Associate Farm Forester, Agricultural Extension Service (1949-1957).
Herrero, Francisco A., M.D., (University of Florida), Assistant Professor of Surgery (1967-1969).
Herrlich, Horst, Ph.D. (Berlin), Visiting Assistant Professor of Mathematics (1969-1969).
Herron, Warren L., M.D., (University of Tennessee), Clinical Assistant Professor of Ophthalmology (1965-1969).
Herwig, Joseph Albert, Jr., B.M.E., Interim Instructor of Architecture (1969).
Hess, Nancy Rose, Ph.D. (Wisconsin), Associate Professor of Marketing (1963-1966).
Hess, Philip J., M.D. (Ohio State), Resident in General Surgery (1968-1969).
Hester, Franklin Donovan, M.A., Interim Assistant Professor of Comprehensive Logic, Adviser, (1968-1968).
Hester, Janice Parham, B.S. in L.S., Assistant Librarian, Catalog (1927-1961).*
Hester, John Donald, M.P.H., Assistant Professor of Physical Education (1957-1963).
Hetrick, Lawrence Andrew, Ph.D. (Ohio State), Professor of Entomology (1947-1959).
Hetrick, Lawrence Andrew III, M.A., Assistant Professor of English (1966-1968).
Hewson, William A., M.D. (University of Florida), Resident in Obstetrics and Gynecology (1968-1969).
Hibbs, Samuel G., M.D. (University of Pittsburgh), Clinical Associate in Psychiatry (1965-1965).
Hicks, Dora Adeline, Ed.D. (Texas), Professor of Health Education (1948-1955).
Hicks, Philip Edward, Ph.D. (Georgia Tech), Associate Professor of Industrial and Systems Engineering (1966-1969).
Hiebert, Ernest, Ph.D. (Purdue University) Assistant Professor (Assistant Plant Pathologist) Institute of Food and Agricultural Sciences (1969-1969).

Hiers, Richard Hyde, Ph.D. (Yale), Associate Professor of Religion (1961-1967).
Hilarides, Robert M., Ph.D. (Florida) Counseling Psychologist, University Counseling Center (1969-1969).
Hildebrandt, Richard John, M.D. (Duke), Assistant Professor in Obstetrics and Gynecology (1960-1966).*
Hill, Elmer Carl, B.S.A., Associate Professor (Associate Bacteriologist), IFAS, FCC, Citrus Experiment Station (1951-1963).
Hill, Fontaine S., M.D., (University of Tennessee), Resident in Psychiatry (1969-1969).
Hill, Hugh Meighan, M.D. (Johns Hopkins), Professor of Obstetrics and Gynecology (1959-1966); Assistant Dean of Student Affairs (1963).
Hill, Jeraldine A., M.Ed., Instructor, P. K. Yonge Laboratory School (1959-1964).
Hill, Walter A., D.B.A. (Washington), Associate Professor of Management (1967-1967).
Hilliard, Frances Pauline, Ed.D. (Columbia), Professor of Education (1950-1960).*
Hilliard, Mary Elizabeth, M.S.N., Assistant Professor of Nursing (1961-1961).
Himes, James Albert, V.M.D. (Pennsylvania), Ph.D. (Cornell), Associate Professor (Associate Pharmacologist), Institute of Food and Agricultural Sciences (1965-1969).
Hinckley, Elmer Dumond, Ph.D. (Chicago), Professor Emeritus of Psychology; Associate, University Counseling Center (1925-1963).
Hindes, Charles Austin, M.F.A., Visiting Instructor of Art (1969).
Hines, Vynce Albert, Ed.D. (Illinois), Professor of Education (1947-1953).
Hinkley, Henry Robert, Assistant Director of Physical Plant, Health Center (1955-1955).
Hinson, Kuell, Ph.D. (Wisconsin), Associate Professor of Agronomy, IFAS, (1955-1966).
Hinson, Ray, M. B.S., Assistant Professor (Assistant Meteorologist), IFAS, USWB, Weather Forecasting Service (1964-1964).
Hipp, Jacob Edward, LL.B., Assistant Professor of Insurance (1955-1957).
Hipple, Theodore, Ph.D. (University of Illinois), Assistant Professor of Education (1968-1968).
Hixson, Imogene, B.S. in L.S., Assistant Librarian and Chairman of Catalog Department (1949-1962).
Hobin, Frederick, M.D. (University of Vermont), Clinical Assistant Professor of Pathology (1969-1969).
Hocker, John, M.D., (Kansas), Assistant Professor of Orthopedics (1968-1969).
Hodes, Richard S., M.D. (Tulane) Clinical Assistant Professor in Surgery (1965-1965).
Hodges, Elver Myron, Ph.D., (Rutgers), Professor (Agronomist), IFAS, Range Cattle Experiment Station (1941-1949).
Hodges, James Roland, Ph.D. (North Carolina), Chairman of Comprehensive English and Professor of English (1950-1964).*
Hodges, Jeff A., M.D. (Mississippi) Resident in Radiology (1968-1968).
Hodges, Julius Barney, Ed.D. (New York University), Professor of Education and Director, P. K. Yonge Laboratory School (1962-1962).
Hodges, Linda L., M.A., Interim Instructor of French (1968-1968).
Hodges, Paul C., M.D. (Washington University), Ph.D. (Wisconsin), Visiting Professor of Radiology (1964-1964).*
Hodges, Stephen Lofton, M.F.A., Instructor of Art (1968-1968).
Hoffman, Charles Andrew, Ph.D. (Arizona), Assistant Professor of Social Sciences and Anthropology (1967-1968).
Hoffman, Edward M., Ph.D. (University of Miami), Assistant Professor (Assistant Bacteriologist), IFAS, (1968-1968).
Hoffman, Glenn John, Ph.D. (Michigan), Associate Professor of Social Sciences; Adviser (1957-1963).
Hogshead, Howard P., M.D. (Iowa) Associate Professor of Surgery (1964-1968).
Holbrook, Hollis Howard, B.F.A., Professor of Art (1938-1948).
Holden, Claire Ann, M.S., Instructor (Assistant in Microbiology), Institute of Food and Agricultural Sciences (1967-1967).
Holden, Edmund Stanley, Ph.D. (Northwestern), Associate Professor of English (1957-1966).

Holder, Larry Bensen, M.D. (Florida), Resident in Obstetrics and Gynecology (1966-1966).
Holland, Harold Ferrell, M.S.C.E., Assistant Professor of Building Construction (1968-1968).
Hollenbeck, John I., M.D. (Ohio State), Resident in Surgery (1968-1969).
Hollien, Harry Francis, Ph.D. (Iowa), Professor of Speech and Director of Communication Sciences Laboratory (1962-1968).
Hollingsworth, James Selwyn, M.A., Research Associate, Latin American Studies (1968-1968).
Hollingsworth, William George, J.D. (Florida) Assistant Professor of Law (1969-1969).
Hollis, Gilbert R., Ph.D., (Purdue), Assistant Professor (Assistant Animal Nutritionist), IFAS, Suwannee Valley Experiment Station (1966-1966).
Hollovary, Eugen, M.D. (Cologne), Resident in Surgery (1966-1966).
Holmes, Thelma Mary, M.P.H., Associate Professor of Physical Therapy (1965-1969).
Holsinger, James W., M.D. (Duke) Resident in Surgery (1968-1968).
Holsworth, Michael C., M.D. (University of Miami), Resident of Radiology (1969-1969).
Holt, John, Ph.D., (Texas A&M University), Assistant Professor—Assistant Economist Farm Management, IFAS (1962-1965).
Holtzman, Saul C., M.D., Clinical Associate in Psychiatry (1968-1968).
Holyoak, Owen Joseph, Ph.D. (University of Iowa), Assistant Professor of Professional Physical Education (1966-1966).
Holzer, Charles E., III, B.A., Assistant in Psychiatry (1968-1968).
Hood, C. Ian, M.B., Ch.B. (Liverpool), Associate Professor of Pathology (1956-1968).
Hoole, Francis W., M.A., Interim Assistant Professor of Political Science (1969-1969).
Hooper, Charles Frederick, Jr., Ph.D. (Johns Hopkins), Associate Professor of Physics (1963-1968).
Hooper, Leonard J., Ph.D. (Southern Illinois), Associate Professor of Journalism and Communications (1964-1967).
Hooser, Hobart, M.A., Administrative Assistant, Division of Intercollegiate Athletics (1950-1960).
Hoover, John Wesley, M.S.A.E., Professor of Aerospace Engineering and Campus Coordinator, State Technical Services (1951-1967).
Hoover, Roy M., M.D. (University of Virginia), Clinical Assistant Professor of Surgery (1966-1969).
Hopkins, Donald Lee, Ph.D., (Kentucky), Assistant Professor (Assistant Plant Pathologist), IFAS, Watermelon and Grape Investigations Laboratory (1969-1969).
Horn, Granville Clide, Ph.D. (Florida), Professor (Ornamental Horticulturist), IFAS (1956-1967).
Horn, John K., M.Ed., Instructor, P. K. Yonge Laboratory School (1964-1968).
Hornberger, Robert Howard, Ph.D. (Iowa), Assistant Professor of Clinical Psychology, V.A.[1], (1969-1969).
Horne, Edward Porter, Ph.D. (Iowa), Associate Professor of Psychology (1949-1949).
Horner, Earl Stewart, Ph.D. (Cornell), Professor of Agronomy, IFAS (1950-1964).
Hortenstine, Charles C., Ph.D. (Florida), Associate Soils Chemist, Agricultural Experiment Stations (1959-1967).
Horwitz, Jeffrey A., M.D. (University of Cincinnati), Resident of Ophthalmology (1969-1969).
Hoskins, Wilbur Joliffe, M.S., Instructor, P. K. Yonge Laboratory School (1958-1962).
Hough, Joseph Potter, B.S., Director of Finance and Accounting (1964-1967).
Hovde, Howard T., Ph.D., (Pennsylvania), Visiting Professor of Marketing (1969-1969).
Howard, Charles Marion, Ph.D., (Cornell), Assistant Professor (Assistant Plant Pathologist), IFAS, Strawberry and Vegetable Field Laboratory (1967-1967).
Howard, William M., Ph.D. (Wisconsin), Professor of Insurance (1955-1957).
Hower, Alfred, Ph.D. (Harvard), Professor of Portuguese and Spanish (1962-1962).

Hren, John Joseph, Ph.D. (Stanford), Associate Professor of Metallurgical and Materials Engineering (1964-1967).
Hsiao, Mu-Yue, Ph.D. (Florida), Associate Professor of Electrical Engineering (1965-1968).*
Hsieh, Chung Kuo, Ph.D. (Purdue), Assistant Professor of Mechanical Engineering (1969-1969).
Hubbell, David Heuston, Ph.D. (N. C. State), Assistant Professor (Assistant Soil Microbiologist), IFAS (1969-1969).
Huber, Joseph Richard, M.Ed., Instructor, P. K. Yonge Laboratory School (1958-1962).
Huber, Wayne Charles, Ph.D. (M.I.T.), Assistant Professor of Environmental Engineering (1968-1968).
Hucker, John S., LL.M., (Yale) Visiting Associate Professor of Law (1969-1969).
Hudson, Calvin H., M.D., (University of Tennessee), Clinical Instructor of Neurosurgery (1969-1969).
Hudson, Jere H., M.S.I.A., Colonel, Professor of Aerospace Studies (1968-1968).
Huffman, Ann Marie, M.S., Assistant Librarian, IFAS (1966-1969).
Huffman, Jacob Brainard, D.F. (Duke), Associate Professor of Forest Product Technology and Associate Forester, Agricultural Experiment Stations (1952-1957).
Huggart, Richard Leigh, B.S., Associate Professor (Associate Chemist), IFAS, FCC, Citrus Experiment Station (1951-1961).
Hughes, Kenneth Burdette, S.J.D. (Harvard), Professor of Law (1968-1968).
Hummel, Rolf Erich, D.Sc. (Stuttgart, Germany), Associate Professor of Metallurgical and Materials Engineering (1964-1969).
Humphreys, Frank R., M.Sc. (University of New South Wales), Research Associate Soils Department, IFAS, (1969-1969).
Humphreys, Thomas Elder, Ph.D. (Pennsylvania), Professor of Botany and Biochemist, Agricultural Experiment Station (1955-1968).
Humphries, Glenda Moore, M.S., Assistant Professor (Extension Household Equipment Specialist), IFAS, (1969-1969).
Hunt, E. L. Roy, J.D. (Mississippi), Assistant Dean & Professor of Law (1962-1968).
Hunter, Elizabeth F., M.S., Interim Instructor of Education (1967-1967).
Hunter, Frank R. Jr., J.D. (George Washington), Associate Professor of Law (1969-1969).
Hunter, Harold R., Ph.D. (Southern California), Assistant Professor of Sociology. (1967-1969).
Hurff, George Brian, Ph.D. (Pennsylvania), Professor of Economics (1948-1948).
Hurlbut, Harold J., M.D., (Emory), Clinical Instructor of Surgery (1969-1969).
Hursch, Carolyn Judge, Ph.D. (Colorado), Assistant Professor of Clinical Psychology and Psychology (1967-1968).
Huseman, Howard William, M.S. in L.S., Assistant Librarian, Teaching Resources Center (1962-1967).
Hutchinson, Edward Charles, Ph.D. (Ohio State), Associate Professor of Speech (1967-1967).
Hutchinson, Sally A., MN, Instructor, College of Nursing (1969-1969).
Hutchinson, William R., M.D. (Duke), Resident in Radiology (1967-1967).
Hutter, Rochelle M. B., M.Ed., Academic Professional I in Psychiatry (1968-1968).
Hutton, Curtis Evan, Ph.D., (Iowa State), Professor (Soils Chemist) and Head, IFAS, West Florida Experiment Station (1949-1949).
Hyman, Thomas B. Jr., J.D. (Florida), Interim Instructor of Law (1969-1969).
Ibarra, Eileen Sullivan, M.A., Interim Instructor in English (1969-1969).
Ibarra, Fernando, Ph.D. (U.C.L.A.), Assistant Professor of Spanish (1967-1967).
Infante, Gelindo, B.S.P.E., Assistant Coach (1967-1967).
Ingle, Kelsey Hudleson, M.S., Instructor, P. K. Yonge Laboratory School (1945-1952).
Ingman, Hal Maury, M.S.M.E., Assistant Professor of Mechanical Engineering (1961-1961).
Ireland, Ronald Joe, Ph.D. (University of Florida), Visiting Assistant Professor of Industrial and Systems Engineering, GENESYS-Daytona Beach (1969-1969).
Irey, Richard Kenneth, Ph.D. (Purdue), Professor of Mechanical Engineering (1964-1969).

Isaacson, Robert L., Ph.D. (University of Michigan), Professor of Psychology and Professor of Anatomical Sciences (1968-1968).
Isaza, Jaime, M.D. (University of Antioguia), Instructor of General Surgery (1967-1969).
Isler, Ralph Charles, Ph.D. (Johns Hopkins), Assistant Professor of Physics (1966-1966).
Ismail, Mohammed Abdel-Rehim, Ph.D., (Florida), Assistant Professor, (Assistant Horticulturist), IFAS, FCC, Citrus Experiment Station (1968-1968).
Iutaka, Sugiyama, M.A. (Facultad Latinoamericana de Ciencias Sociales, Santiago, Chile), Associate Professor of Sociology (1967-1967).
Jaberg, Russell Lowell, S.T.D. (Temple), Assistant Professor of Humanities (1968-1969).
Jackson, Bill Greer, MS, Assistant Animal Husbandman, Agricultural Extension Service (1967-1967).
Jackson, Elmo Louis, Ph.D. (Harvard), Professor of Economics (1946-1958).*
Jackson, Larry Keith, M.S.A. Interim Assistant in Horticulture, IFAS (1964-1968).
Jackson, Ronald Frederick, D.V.M. (Michigan State), Associate Professor (Associate Veterinarian), Institute of Food and Agricultural Sciences (1968-1968).
Jacobs, Arthur J., Ed.D. (Columbia) Assistant Professor of Journalism and Communications and Producer-Director, Television Station WUFT (1964-1964).
Jacobs, John Franklyn, Ed.D. (Florida), Interim Assistant Professor of Education and Instructor of Psychiatry (1969-1969).
Jacobs, Marnell L., M.Ed. (University of Florida), Research Assistant in Psychiatry (1969-1969).
Jacunski, Edward Walter, M.A.E., Associate Professor of Engineering Graphics; Assistant Dean, College of Engineering (1947-1967).
Jaeger, Marc, J.R., M.D., (University of Bern), Associate Professor in Physiology and Dentistry (1969-1969).
James, John H., D.B.A. (Indiana), Associate Professor of Management (1961-1964).
Janes, Melvin Joseph, Ph.D., (Iowa State), Assistant Professor (Assistant Entomologist), IFAS, Everglades Experiment Station.
Janos, Ludvik, Ph.D. (Charl's University, Prague), Associate Professor of Mathematics (1966-1968).
Jantzen, Alice Catherine, M.S., Professor and Chairman, Department of Occupational Therapy (1958-1968).*
Jefferies, Mildred B., M.P.H., Assistant Professor of Bacteriology (1953-1953).
Jen, Yuan, Ph.D. (California), Assistant Professor of Coastal and Oceanographic Engineering (1969-1969).
Jenkins, D. Orvin, M.D. (University of Florida), Resident in General Surgery (1969-1969).
Jennings, Gerald Douglas, M.S., Counselor, Division of Housing (1969-1969).
Jennings, Robert Benjamin, J.D., (Florida), Associate Professor of Management & Business Law, and Assistant Dean, College of Business Administration (1957-1969).
Jensen, Anthony Svend, M.S.F., Assistant Farm Forester, Agricultural Extension Service (1953-1953).
Jensen, Geraldine Afton, Ph.D. (Purdue), Assistant Professor of Mathematics (1964-1966).*
Jensen, Paul J., Ph.D. (Iowa), Associate Professor of Speech (1963-1967).
Jester, Robert E., Ph.D., (Utah), Associate Professor of Education (1966-1969).
Jewell, Richard Brownell, M.A., Interim Instructor in English (1969-1969).
Joffe, Saretta H., M.S., (Columbia University), Instructor in Social Work in Psychiatry (1969-1969).
Johns, Lewis E., Jr., Ph.D. (Carnegie) Assistant Professor of Chemical Engineering (1967-1968).
Johns, Roe Lyell, Ph.D. (Columbia), Professor of Education (1946-1946).
Johnson, Carl Henry, Ph.D. (Washington), Professor of Pharmacognosy, (1939-1954).
Johnson, Charles G., Jr., B.S.B.A., Controller, Shands Teaching Hospital and Clinics (1964-1966).
Johnson, E. Marshall, Ph.D. (California) Professor and Acting Chairman of Anatomical Sciences (1960-1968).
Johnson, F. Clifford, Ph.D. (Texas), Associate Professor of Zoology (1967-1967).

Johnson, Irmgard, Ph.D. (Denver), Professor of Humanities (1955-1967).
Johnson, Joseph E., III, M.D. (Vanderbilt), Professor in Medicine (1966-1968).
Johnson, Loys Almon, M.S.C.E., Professor of Building Construction and Chairman of Department of Building Construction (1960-1964).
Johnson, Raymond Clarence, M.S.E., Professor of Electrical Engineering (1946-1968).
Johnson, Roger Burr, Ph.D., (Cornell), Professor (Entomologist), IFAS, Citrus Experiment Station (1952-1965).
Johnson, Steve, Service Activities Supervisor (1964-1964).
Johnson, Warren Oswald, B.A., Professor (Meteorologist) and Head, IFAS, USWB, Weather Forecasting Service (1935-1938).
Johnston, David Ware, Ph.D. (California), Associate Professor of Biological Sciences and Zoology (1963-1967).
Johnston, Otto W., Ph.D. (Princeton), Assistant Professor of German (1969-1969).
Joiner, D. Wayne, M.D. (Georgia) Resident in Radiology (1968-1968).
Joiner, Jasper Newton, Ph.D. (Ohio State), Professor (Ornamental Horticulturist), IFAS (1950-1966).
Joines, Robert Clint, Ph.D. (Emory), Interim Assistant Professor of Chemistry (1969-1969).
Jones, Anne Harrison, B.S., Assistant Registrar (1941-1952).
Jones, Bartlett Campbell, Ph.D. (Emory), Assistant Professor of History and Social Sciences (1969-1969).
Jones, Charles Allan, M.S., Counselor, Division of Housing (1969-1969).
Jones, David T., M.D. (Ohio) Resident in Surgery (1967-1968).
Jones, David Wilson, M.S.A., Associate Professor of Agronomy, IFAS (1946-1959).
Jones, Edmund Ruffin, Ph.D. (Virginia), Professor of Zoology (1946-1947).
Jones, Elise Cecile, B.A., Assistant in Research, Bureau of Economic and Business Research (1953-1953).
Jones, Ernest McClain, J.S.D. (Yale), Professor of Law (1954-1957).*
Jones, Gary C., M.S., Assistant in Agricultural Economics (Instructor), Agricultural Experiment Stations (1966-1966).
Jones, Harry Greene, B.S., Administrator, State Center for Continuing Education, Jacksonville (1968-1968).
Jones, Jesse Ray, Jr., M.A. in L.S., Assistant Librarian, Reference and Bibliography (1961-1966).
Jones, John Fremon, M.A., Interim Instructor of Economics (1969-1969).
Jones, John Paul, Ph.D., (Ohio State), Associate Professor (Associate Plant Pathologist), IFAS, Gulf Coast Experiment Station (1958-1967).
Jones, John Paul, M.A., Dean and Professor of Journalism and Communications (1948-1968).
Jones, Lloyd Edgar, III, Ph.D. (Purdue), Assistant Professor of Electrical Engineering, GENESYS—Port Canaveral (1967-1967).
Jones, Norman E., M.D. (University of Florida), Clinical Fellow in Radiology (1968-1969).
Jones, Oscar Frederick, Ph.D. (Stanford), Professor of German (1937-1959).
Jones, Otis P., Jr., B.S., Director of Service Activities (1967-1967).
Jones, Sally Moore, B.S.N., Instructor, College of Nursing (1966-1966).
Jones, William B., Ph.D. (Vanderbilt), Ph.D. (University of Virginia). Assistant Professor of Philosophy and Physics (1969-1969).
Jones, William Benjamin, M.A., Assistant Professor of Philosophy and Physics, (1969-1969).
Jones, William Ellis, B.S.B.A., Associate Director of Physical Planning (1948-1968).
Jones, William Hugh, Jr., M.A., Assistant Superintendent of Field Services, Agricultural Experiment Stations (1953-1953).
Jones, William Maurice, Ph.D. (Southern California), Professor of Chemistry and Chairman of Department (1956-1968).
Jordan, Judith Ann, B.S., Research Assistant in Clinical Research Center (1968-1968).
Jordan, Virginia Goodell, M.E., Assistant Professor of Medical Technology (1967-1967).
Josephson. Susan L., B.A., (Lindewood College), Research Assistant in Psychiatry (1969-1969).
Jourard, Sidney M., Ph.D., (Buffalo), Professor of Psychology (1958-1964).

Juergensmeyer, Julian C., LL.B., Interim Associate Professor of Law (1969-1969).
Julius, Richard I, M.D., (Florida), Resident in Pediatrics (1967-1967).
Jurkiewicz, Maurice J., M.D. (Harvard), D.D.S. (Maryland), Professor of Surgery (1959-1968).
Kafoglis, Milton Z., Ph.D. (Ohio State), Professor of Economics (1958-1968).*
Kaiser, John William, M.A., Professor of Mathematics (1967-1967).
Kaiser, William Francis, M.B.A., Assistant Professor of Electrical Engineering (1969-1969).
Kalch, Lester Wilcox, M.Ag., Associate Extension Poultryman, Agricultural Extension Service (1951-1968).
Kallenbach, Ernst A., Ph.D. (McGill) Assistant Professor of Anatomical Sciences (1963-1964).
Kamal, Waseem, M.D. (Jun tendo), Resident in Ophthalmology (1969-1969).
Kammerer, Gladys M., Ph.D. (Chicago), Professor of Political Science and Director of Public Administration Clearing Serv ce (1958-1958).
Kampen, Michael Edwin, Ph.D., (Univ. of Pennsylvania), Interim Visiting Assistant Professor of Art (1969).
Kanai, Atshushi, M.D., Instructor in Ophthalmology (1968-1968).
Kaplan, Leonard, Ed.D., (Rochester), Associate Professor of Education (1967-1968).
Kaplan, Stanley, Ph.D. (Miami) Assistant Professor of Anatomical Sciences (1966-1967).
Karacan, Ismet, M.D. (University of Istanbul), Associate Professor of Psychiatry (1966-1966).
Karlowicz, Monika, Ph.D. (Warsaw), Postdoctoral Fellow, Mathematics (1969-1969).
Karlsberg, Robert C., M.D. (Michigan) Resident in Ophthalmology (1968-1968).
Karns, Charles Franklin, Ph.D. (Pittsburgh), Associate Professor of Speech (1964-1969).
Katz, Loyce Ann, M.A., Assistant Dean for Student Development (1967-1969).
Kaude, Juri Vello, M.D. (University of Kiel, Germany) Visiting Assistant Professor in Radiology (1968-1968).
Kaufman, Clemens Marcus, Ph.D. (Minnesota), Professor of Forestry and Forester, Agricultural Experiment Stations (1951-1962).
Kaufman, Herbert E., M.D. (Harvard) Professor of Ophthalmology, Chairman of the Department of Ophthalmology and Professor of Pharmacology (1962-1969).
Kaufmann, John Henry, Ph.D. (California), Associate Professor of Biological Sciences and Zoology (1963-1968).
Kay, Barbara Ann, Ph.D. (Ohio State) Associate Professor of Psychiatry and Sociology (1968-1968).
Keefer, Dennis Ralph, Ph.D. (Florida), Assistant Professor of Aerospace Engineering (1963-1967).
Keene, Willis R., M.D. (Johns Hopkins), Associate Professor of Medicine and Chairman of the Department of Medicine for JHEP (1969-1970).
Keesling, James Edgar, Ph.D. (Miami), Assistant Professor of Mathematics (1967-1968).
Kehoe, Michael James, M.D. (St. Bartholomew's Hospital Medical College) Associate Professor of Psychiatry (1967-1967).
Keig, Norman Guthrie, Ph.D. (Ohio State), Associate Professor of Economics (1963-1966).
Keirn, Michael Austin, M.S., Research Assistant in Environmental Engineering (1969-1969).
Keister, Elwood J., Ed.D. (Columbia), Professor of Music (1957-1963).
Keitt, Alan S., M.D. (Harvard) Assistant Professor of Medicine (1968-1968).
Kele, Max Herschel, Ph.D. (Tulane), Assistant Professor of History (1965-1968).
Kelley, Loretta J., MN, Instructor, College of Nursing (1969-1969).
Kelley, Michael J., M.D., (Washington University), Intern in Medicine (1969-1969).
Kelly, Daniel Leo, Ed.D. (Florida), Assistant Professor of English, Adviser (1965-1967).
Kelly, Earl McNeil, M.Ag., Professor (Extension District Agent), IFAS, (1949-1969).
Kelsey, Elizabeth B., M.A. (Mount Holyoke College), Research Associate in Surgery (1961-1969).

Kemerait, Janet Perkins, M.A., Interim Instructor in English (1969-1969).
Kemp, Harold Warren, M.S., Assistant Professor of Architecture (1966-1966).
Kendall, Kenneth Everett, Ph.D. (Florida), Assistant Professor of English (1965-1965).
Kendzior, Richard Anthony, B.S.B.A., Assistant Bookstore Manager (1966-1966).
Kensler, Edsel Byard, B.S., Assistant Coach (1964-1964).
Keppel, Reuben Arthur, M.S.E., Research Associate in Chemical Engineering (1955-1957).
Kerr, Stratton Horsburg, Ph.D. (Cornell), Entomologist, Agricultural Experiment Station (1953-1968).
Kerslake, Kenneth Alvin, M.F.A., Associate Professor of Art (1956-1969).
Kesl, Leonard Edwards, M.A., Visiting Assistant Professor of Art (1968-1968).
Kesterson, James Walter, M.S., Professor (Chemist), IFAS, Citrus Experiment Station (1947-1956).
Key, Lynnea, M.Ed., Counselor, Division of Housing (1969-1969).
Khalil, Tarek M., Ph.D. (Texas Tech), Assistant Professor of Industrial and Systems Engineering (1969-1969).
Khuri, Andrawus Ilias, Ph.D. (Florida), Interim Instructor of Mathematics (1969-1969).
Kidd, Kenneth Paul, Ph.D. (Peabody), Professor of Education (1938-1955).
Kilby, John Davis, Ph.D. (Florida), Associate Professor of Biological Sciences and Zoology, Adviser (1947-1956).
Killinger, Gordon Beverly, Ph.D. (Iowa State), Professor of Agronomy, IFAS (1941-1943).
Kim, Dong Sie, Ph.D. (Tulane), Assistant Professor of Mathematics (1969-1969).
Kim, Sung Jin, Ph.D. (University of Florida), Research Associate in Biochemistry (1969-1969).
Kimball, Solon T., Ph.D. (Harvard), Graduate Research Professor of Anthropology (1966-1966).
Kimbrough, James William, Ph.D (Cornell), Assistant Professor of Botany and Assistant Micologist, Agricultural Experiment Station (1964-1964).
Kimbrough, Ralph Bradley, Ed.D. (Tennessee), Professor of Education and Chairman, Educational Administration Department, (1958-1966).
Kinard, Drayton Tucker, Ph.D., (Michigan State), Professor (Agricultural Engineer) IFAS, (1958-1958).
Kinard, Sammy Alzofon, M.L.S., Assistant Librarian, Reference and Bibliography (1969-1969).
Kincaid, Randall Rich, Ph.D., (Missouri), Professor (Plant Pathologist), IFAS, North Florida Experiment Station (1929-1943).
King, Emily Elizabeth, Ph.D. (Wisconsin), Professor (Extension Home Economist, Resource Development), IFAS, (1946-1964).
King, Frederick, Ph.D. (Johns Hopkins), Professor and Chairman of Anatomical Sciences and Professor of Psychology (1959-1969).
King, Frederick Elijah, M.S., Assistant Director, Division of Housing (1951-1957).
King, Howard E., B.A., Director, Administrative Services, Health Center (1962-1968).
King, Martha, E., B.A., Research Assistant in Surgery (1968-1968).
King, Robert Lee, Ph.D. (Johns Hopkins), Assistant Professor of Physiology (1961-1964).
King, Roy Warbrick, Ph.D. (Cambridge), Research Associate in Chemistry (1969-1969).
Kinloch, Robert Armstrong, Ph.D., (Univ. of California), Assistant Professor (Assistant Nematologist), IFAS, West Florida Experiment Station (1968-1968).
Kinzey, Bertram York, Jr., M.S.A.E., Professor of Architecture (1959-1965).
Kiple, Kenneth Franklin, Ph.D. (Florida), Interim Instructor in Social Sciences (1969-1969).
Kirk, Charles D., M.D., (University of North Carolina), Intern in Surgery (1969-1969).
Kirk, William C. Jr., J.D. (Florida), Assistant Professor of Law (1968-1968).
Kirkland, Edwin Capers, Ph.D. (Northwestern), Professor of English (1946-1951).*
Kirkpatrick, Martin Smith, M.A., Associate Professor of English (1956-1969).*
Kirmse, Dale William, Ph.D. (Iowa State), Assistant Professor of Chemical Engineering (1964-1965).*

Kiser, Linda Kay, M.N., Instructor, College of Nursing (1969-1969).
Kiser, Lora Antoinette, M.S., Professor (Extension Home Economist, Professional Development), IFAS, (1946-1963).
Kitts, John Stewart, M.M., Assistant Professor of Music (1966-1966).
Klein, Paul A., Ph.D., (University of Florida), Assistant Professor of Pathology (1969-1969).
Klement, Frank William, M.A., Assistant Professor of Engineering Graphics (1958-1958).
Kline, William Eugene, Ed.D. (Denver), University Psychologist (1965-1969).
Kluge, Ralph Wendel, M.S., Professor of Civil Engineering (1951-1951).
Knapp, Fredrick W., Ph.D. (University of California), Associate Professor (Associate Biochemist), IFAS (1960-1967).
Knauss, James Frederick, Ph.D., (Cornell), Assistant Professor (Associate Plant Pathologist), IFAS, Ridge Ornamental Horticultural Laboratory (1969-1969).
Kniffen, Jared C., M.D. (New York Medical College), Associate Professor of Medicine (1963-1969).
Knight, Corrine Studstill, M.A., Associate Professor of Education (1967-1967).
Knipling, Edward Byron, Ph.D. (Duke), Assistant Professor of Agronomy, IFAS, USDA (1968-1968).
Kniseley, Sherman Philip, Ph.D. (North Carolina), Associate Professor of Humanities, Adviser (1964-1969).
Knizley, Homer, M.D. (University of Florida), Assistant Professor and Acting Chief of Endocrinology (1967-1969).
Knorr, Louis Carl, Ph.D., (Cornell), Professor (Plant Pathologist), IFAS, Citrus Experiment Station (1948-1959).*
Knotts, Doug, Assistant Football Coach, (1969-1969).
Knowles, Harold Loraine, Ph.D. (Kansas), Professor of Physical Sciences and Physics (1931-1955).
Knowles, Lois Nina, M.A., Professor, Assistant Dean for Undergraduate Program, College of Nursing (1956-1966).
Koburger, John Alfred, Ph.D. (North Carolina State Univeresity), Assistant Professor (Assistant Microbiologist), IFAS (1969-1969).
Koch, Duane E., Ph.D. (Michigan State), Interim Assistant Professor (Interim Assistant Meat Scientist), IFAS (1969-1969).
Koefod, Paul E., Ph.D. (Institute of International Studies, Geneva), Professor of Economics (1956-1965).
Koehler, Erica J., M.P.H., Assistant Professor, College of Nursing (1968-1968).
Koenig, Alfred D., M.D. (University of Lausanne), Clinical Associate in Psychiatry (1964-1964).
Koger, Marvin, Ph.D. (Missouri), Professor of Animal Science and Animal Geneticist, Agricultural Experiment Stations (1951-1951).
Kohler, William C., M.D. (University of Florida), Resident in Pediatrics (1968-1969).
Kohut, Robert, M.D. (Chicago) Associate Professor of Surgery (1966-1968).
Kokomoor, Marvin L., M.D., Clinical Associate in Pediatrics (1968-1968).
Kolarik, J. Milan, Ph.D. (Pittsburgh), Senior Counseling Psychologist, University Counseling Center; Associate Professor of Psychology (1956-1963).
Kölzow, Hans Dietrich, Ph.D. (Greifswald), Visiting Associate Professor of Mathematics (1969-1969).
Konishi, Teruzo, Ph.D. (Kyoto, Japan), M.D. (Kyoto), Associate Research Professor of Surgery, Physiology and Speech (1963-1968).
Koo, Robert Chung Jen, Ph.D., (Florida), Professor (Horticulturist), IFAS, Citrus Experiment Station (1953-1969).
Koogler, Carol Cross, M.A., Interim Assistant Professor of Health Education (1968-1968).
Kordana, Jane Helen, M.A., Associate Professor of Nursing (1957-1966).
Koru, Sadi Sabit, M.A.Arch., Associate Professor of Architecture (1947-1956).
Kouba, Ethel O., Ph.D., (University of Florida) Research Associate in Medicine (1969-1969).
Kramer, Dean C., M.D. (University of Missouri), Resident in Medicine (1969-1969).
Kramer, Sol, Ph.D. (Illinois), Professor of Psychiatry and Biology (1964-1964).
Kraver, Ronald T., M.F.A., Instructor of Art (1968-1968).

Kress, Esta L., M.D. (Pennsylvania), University Physician (1967).
Kress, Jacob Himi, M.D. (Virginia), University Physician, Department of Student Health (1965-1967).
Kretschmer, Albert Emil, Jr., Ph.D., (Rutgers), Professor (Agronomist), IFAS, Indian River Field Laboratory (1952-1966).*
Krezdorn, Alfred Herman, Ph.D. (Texas A & M), Professor and Chairman, Department of Fruit Crops, Institute of Food and Agricultural Sciences (1957-1960).
Krienke, Walter Albert, M.S., Associate Professor of Diary Science and Associate Dairy Technologist, Agricultural Experiment Stations (1946-1946).
Krispyn, Egbert, Ph.D. (Pennsylvania), Professor of Germanic Languages and Chairman of Department (1963-1968).*
Kronsbein, John, Ph.D. (Leipzig, Germany), Dr. rer Nat. (Jena, Germany), Professor of Metallurgical and Materials Engineering, and Professor of Physics (1958-1958).
Kronstadt, Alexander, Ph.D. (Florida), Assistant Professor of Psychiatry and Clinical Psychology, (1968-1968).
Krumm, Roger Vincent, M.A., Associate Librarian in charge of Engineering and Physical Sciences Library (1951-1966).
Kuch, E. J. Newby, (Florida College of Medical Technology), Research Assistant in Anesthesiology (1969-1969).
Kuch, Helga N., M.D., (University of Munich), Research Assistant in Psychiatry (1968-1969).
Kuitert, Louis Cornelius, Ph.D. (Kansas), Professor of Entomology and Nematology, Entomologist, Agricultural Experiment Stations (1948-1965).
Kulig, Sharon, Ph.D. (Florida), Postdoctoral Fellow in Speech (1969-1969).
Kundel, Tewes, M.S., Associate Professor of Electrical Engineering (1957-1957).
Kurth, Edwin Louis, Ed.D. (Florida), Associate Professor of Education (1964-1964).
Kurtzman, David R., Ph.D. (Maryland), Assistant Professor of Philosophy (1966-1966).
Kurtzman, Sally Reynolds, M.S.N., Teaching Assistant in Psychiatry (1968-1968).
Kurtzrock, George H., Ph.D. (Illinois), Associate Professor of Speech and Director of Audiology (1956-1967).*
Kurzweg, Ulrich Hermann, Ph.D. (Princeton), Associate Professor of Engineering Science and Mechanics (1968-1968).
Kushner, David Z., Ph.D. (University of Michigan), Professor of Music (1969-1969).
Kwachka, Patricia, M.A., (University of Florida), Assistant in Psychiatry (1969-1969).
Kylstra, Chester Dyer, Ph.D. (Florida), Associate Professor of Nuclear Engineering (1967-1967).
LaBrecque, Germain C., Ph.D. (Ohio State), Associate Professor of Entomology and Supervisor of Premises Treatment Project—U.S.D.A. Entomology Research Laboratory (1963-1963).
Lackore, Leonard K., M.D. (Iowa) Resident in Anesthesiology (1968-1968).
Laessle, Albert Middleton, Ph.D. (Florida), Associate Professor of Zoology (1942-1956).
Lai, Ronald J., Ph.D. (Colorado State), Post Doctoral Fellow in Coastal and Oceanographic Engineering (1969-1969).
Laite, Melville B., M.S., Teaching Research Assistant, Pathology (1961-1961).
Lake, Noel Reese, B.S.A., Groundskeeping Superintendent (1955-1955).
Lake, Richard, M.A., Interim Assistant Professor of Speech (1969-1969).
Lamb, Rosemary Ashworth, M.A., Interim Instructor of Classical Languages (1969-1969).
Lambert, Roy E., Ph.D. (Illinois), Associate Professor of Humanities (1959-1963).
Lamborn, LeRoy L., LL.M. (Yale), Assistant Professor of Law (1965-1965).
Lamm, Ronald M., M.D. (Emory) Resident in Ophthalmology (1966-1966).
Lanciani, Carmine A., Ph.D. (Cornell), Interim Assistant Professor of Zoology (1968-1968).
Landor, John H., M.D. (University of Chicago), Professor of Surgery (1969-1969).
Landsman, Theodore, Ph.D. (Syracuse), Professor of Education (1958-1959).
Lane, David, Ph.D. (Columbia), Associate Professor of Education (1954-1954).

Langdon, Kenneth R., Ph.D. (Florida), Assistant Professor of Nematology (1966-1966).
Langee, Harvey Robert, M.D. (Stanford) Assistant Professor of Psychiatry (1968-1968).
Langford, Allie Gerald, Ed.D. (Columbia), Associate Professor of English, Adviser (1953-1966).*
Langham, Max Raymond, Ph.D., (Illinois), Associate Professor (Associate Agricultural Economist), IFAS (1962-1965).
Lantos, Robert L., M.S. Director, Pharmaceutical and Central Sterile Supply Services; Assistant Professor, College of Pharmacy (1967-1967).
Lanzillotti, Robert Franklin, Ph.D., (California at Berkley), Professor of Economics and Dean of College of Business Administration (1969-1969).
LaPointe, Leonard, Ph.D. (Colorado), Assistant Professor of Communicative Disorders, V.A.[1] (1969-1969).
Larche, Thelma B., M.A., in L.S., Instructor, P. K. Yonge Laboratory School (1963-1968).
Larkin, Ann Rebecca S., Ph.D. (Colorado) Assistant Professor of Anatomical Sciences (1968-1968).
Larkin, Lynn Haydock, Ph.D. (Colorado) Assistant Professor of Anatomical Sciences (1968-1968).
Larrick, Thomas, M.Arch., Professor of Architecture (1946-1946).
Larsen, Janet Seger, Ed.D. (Florida), Assistant Professor of English (1969-1969).
Larson, Edwin Arthur, M.D. (Northwestern) Chief of Mental Health Program, Student Health Service, Associate Professor of Psychiatry (1964-1968).
Larson, Richard F., Ph.D. (Notre Dame), Associate Professor of Sociology (1968-1968).
Lasley, Marion Murray, Ph.D. (Columbia), Associate Professor of Spanish (1956-1956).
Latif, Mohammed Abdul, M.S., Assistant in Engineering in Coastal and Oceanographic Engineering (1968-1968).
Latour, Marinus Henry, M.S.E., Associate Professor of Electrical Engineering (1946-1950).
Lau, Thomas Joseph, M.D. (Yale) Resident in Pathology (1967-1967).
Laurencelle, Patricia, M.A., Associate Professor, Health Related Professions (1966-1968).*
Lauricella, James, M.F.A., Interim Assistant Professor of Speech (1967-1967).
Lauter, Werner, Ph.D. (Griefswald), Professor of Pharmaceutical Chemistry (1950-1950).*
LaVire, Willis Alvin, Ed.D. (Florida), Associate Professor of Education (1961-1965).
Lawrence, Fred Parker, M.S.A. Professor (Horticulturist) IFAS, (1947-1947).
Lawrence, Gordon D., Ph.D. (Claremont), Associate Professor of Education (1969-1969)
Lawrence, John Winslow, B.S., Major, U.S. Army Assistant Professor of Military Science (1967-1967).
Lawrence, Joyce, M.Ed., Interim Assistant Professor of Education, (1968-1968).
Lea, Roberta Neyland, M.Ed., Interim Assistant Professor of Professional Physical Education (1968-1968).
Leadon, Bernard Mathew, Ph.D. (Minnesota), Professor of Aerospace Engineering (1964-1964).
Leavenworth, Richard Stewart, Ph.D. (Stanford), Associate Professor of Industrial and Systems Engineering (1966-1966).
Leaverton, David R., M.D. (Colorado) Resident in Psychiatry (1967-1967).
Leavitt, Benjamin Burton, Ph.D. (Harvard), Associate Professor of Biological Sciences and Zoology (1946-1954).
Leavitt, Norma Muriel, Ed.D. (Columbia), Professor of Professional Physical Education (1953-1963).
Leber, Gail W., Assistant Professor (Assistant Meterologist), IFAS, USWB, Weather Forecasting Service (1963-1963).
Lebo, George Robert, Ph.D. (Florida), Assistant Professor of Astronomy (1964-1965).
Lee, David Byron, J.D. (Florida), Assistant Professor of Comprehensive Logic, Adviser, (1968-1969).

Lee, Permillas Arten, Jr., M.A., Assistant Professor of Physical Education (1948-1951).
Lee, Robert Charles, Ph.D. (Peabody), Associate Professor of English (1947-1956).
Lee, Robert Edward, Ed.D. (Florida), Interim Assistant Professor of Education (1969-1969).
Lee, Robert Matthews, Ed.S., (Florida) Assistant to the Dean, College of Law (1963-1963).
Legg, Keith R., Ph.D. (California), Assistant Professor of Political Science (1966-1967).
LeGrand, Ferdinand, M.S., Assistant Professor (Assistant Agronomist), IFAS, Everglades Experiment Station (1958-1958).
Lehman, Wilbur L., D.D.S. (Ohio State University), Assistant Professor of Dentistry, College of Dentistry (1968-1968).
Leibman, Kenneth C., Ph.D. (New York University), Professor of Pharmacology (1956-1968).
Leighty, Ralph George, B.S., Associate Soils Surveyor, Agricultural Experiment Stations (1947-1956).
Leilich, Roy Edgar, Re.D., (Indiana), Professor of Professional Physical Education and Recreation (1952-1967).
Lemarchand, Rene, Ph.D. (U.C.L.A.), Associate Professor of Political Science (1962-1968).*
Lembcke, Barbara Alice, M.A., Counselor, Division of Housing (1968-1968).
LeMoyne, McPherson, M.A., Interim Instructor of Economics (1963-1963).
Leonard, Chester D., Ph.D., (Rutgers), Professor (Horticulturist), IFAS, Citrus Experiment Station (1950-1966).
Leppelmeier, Gayle McKerrow, M.Ed., Assistant Professor of Occupational Therapy (1968-1968).
Leppelmeier, J. W., M.A., Interim Instructor of Economics (1968-1968).
Lerch, Harold Alexander, Ph.D., (Ohio State University), Assistant Professor of Professional Physical Education (1968-1968).
Leslie, Gerald R., Ph.D. (Ohio State), Professor and Chairman, Department of Sociology (1967-1967).
Leslie, Gerrie Allen, Ph.D. (Hawaii) Postdoctoral Fellow in Microbiology (1968-1968).
Lester, W. Bernard, Ph.D. (Texas A&M), Assistant Agricultural Economist, FCC, Agricultural Experiment Stations (1967-1967).
Levin, Sidney, M.D., (Baylor), Associate Professor of Pediatrics and Chairman of Department of Pediatrics for JHEP (1968-1970).
Levinson, L. Harold, LL.M. (New York University), Associate Professor of Law (1966-1967).
Levy, C. Michael, Jr., Ph.D. (Wisconsin), Assistant Professor of Psychology (1964-1964).
Lewis, A. L., Jr., Ph.D. (Duke), Associate Professor of Humanities and Philosophy (1957-1966).
Lewis, Anne M., B.S. (Florida State), Research Assistant in Medicine (1960-1960).
Lewis, Arthur J., Ed.D., (Columbia) Professor of Education and Chairman, Division of Curriculum and Instruction, College of Education (1970-1970).
Lewis, Hal Graham, Ph.D. (Columbia) Professor of Education and Chairman, Department of Educational Foundations (1936-1969).*
Lewis, John N., M.D., (Johns Hopkins), Resident in Medicine (1968-1969).
Li, Sheng-San, Ph.D. (Rice), Assistant Professor of Electrical Engineering (1968-1969).
Lieberman, Lawrence J., M.D. (Florida) Resident in Medicine (1968-1968).
Ligh, Steve C. H., Ph.D. (Texas A&M), Assistant Professor of Mathematics (1969-1969).
Liles, Annette Lucille, M.A., B.S. in L.S., Associate Librarian and Chairman of Reference and Bibliography Department; Associate Professor of Library Science (1947-1967).
Lindgren, Erik Rune, Tekn. Dr. (Royal Institute of Technology Sweden), Professor of Engineering Science and Mechanics (1965-1965).
Lindholm, Fred Arthur, Ph.D. (Arizona), Professor of Electrical Engineering (1966-1966).
Lindquist, Robert Carl, M.S., Assistant Professor of Physical Sciences (1959-1965).

Lindsey, Elizabeth M., M.S., Instructor, College of Nursing (1968-1968).
Lindstrom, John D., M.A., Instructor in Journalism and Communications (1967-1968).
Linton, William R., M.D. (Florida), Resident in Medicine (1968-1968).
Lipovski, Gerald John, Ph.D. (Illinois), Assistant Professor of Electrical Engineering (1969-1969).
Lipscomb, Ralph Waldo, M.S., Associate Professor (Associate Agronomist), IFAS, North Florida Experiment Station, Mariana Unit, (1944-1944).
Lisca, Peter, Ph.D. (Wisconsin), Associate Professor of English (1958-1966).*
Lister, James, L., Ed.D. (Illinois), Professor of Education and Chairman, Counselor Education Department (1962-1968).
Little, John M. M.D. (McGill) Assistant Professor of Ophthalmology (1966-1967).
Little, Joseph Wallace, J.D., Associate Professor of Law (1967-1968).
Llewellyn, William, M.S.A., Interim Assistant Short Course Advisor (1968-1968).
Lloyd, James Edward, Ph.D. (Cornell), Assistant Professor of Biological Sciences and Entomology (1966-1966).
Locascio, Salvadore Joseph, Ph.D. (Purdue), Associate Professor of Vegetable Crops and Associate Horticulturist, Agricultural Experiment Stations (1959-1965).
Lofgren, Clifford Swanson, Ph.D. (University of Florida), Assistant Professor of Entomology, USDA Entomology Research Lab. (1968-1968).
Loften, William Travis, M.A.E., Associate Professor of Education, (1937-1937).
Loggins, Phillip Edwards, M.S., Associate Professor of Animal Science and Associate Animal Husbandman, Agricultural Experiment Stations (1953-1966).
Londono, Javier H., M.D. (University of Antioquia), Clinical Fellow in Pharmacology and Medicine (1969-1969).
Long, Stephen Gano, M.A., Assistant Professor of English, Adviser (1958-1958).*
Long, Sterling Krueger, Ph.D., (University of Texas), Associate Professor (Associate Bacteriologist), IFAS, Citrus Experiment Station (1958-1968).
Lopez, Celia Amalia, M.S. in L.S., Assistant Librarian, Acquisitions (1966-1966).
LoPucki, Lynn M., J.D. (Michigan), Assistant Professor of Business Law (1967-1967).*
Lore, Charles E., M.D., Clinical Associate in Surgery (1968-1968).
Lorenz, Erhard, Radiology Instructor (1967-1967).
Lorz, Albert Protus, Ph.D. (Virginia), Professor of Vegetable Crops and Horticulturist, Agricultural Experiment Stations (1948-1948).
Löwdin, Per-Olov, Ph.D. (Uppsala), Graduate Research Professor of Chemistry and Physics (1960-1960).
Lowe, Ronald Edsel, Ph.D. (Purdue), Assistant Professor of Entomology (1966-1966).
Lowenthal, Joseph J., M.D. (Pennsylvania) Clinical Associate Professor (JHEP) in Medicine (1968-1968).
Lu, Sung Yun, Ph.D. (Carnegie), Associate Professor of Engineering Science and Mechanics (1959-1963).
Lucas, Howard Charles, M.D. (Cornell) Clinical Associate in Ophthalmology (1962-1962).
Lucht, Charles Ross, M.A., Interim Assistant Professor of English (1969-1969).
Luckhaupt, Amos Edward, B.A., Instructor of Chemistry (1962-1962).
Luehr, Charles Poling, Ph.D. (California), Postdoctoral Fellow, Mathematics (1968-1968).
Lugo, Ariel Emilio, Ph.D. (University of North Carolina), Assistant Professor (Assistant Botanist), IFAS (1969-1969).
Luke, Herbert Hodges, Ph.D. (Louisiana State), Professor (Plant Pathologist, USDA) Institute of Food and Agricultural Sciences (1955-1955).
Lundy, Hosea Willia, B.S.A., Associate Professor (Associate Agronomist) and Head, IFAS, Suwannee Valley Experiment Station (1946-1955).
Luther, Dorothy C., M.A., Associate Professor, College of Nursing (1957-1969).
Lutherer, Lorenz O., Ph.D., (University of Florida), Postdoctoral Fellow in Physiology (1969-1969)
Lutrick, Monroe Cornealous, Ph.D., (Ohio State), Associate Professor (Associate Soils Chemist), IFAS, West Florida Experiment Station (1956-1967).
Lynch, Michael Allan, M.S., Interim Instructor in Physical Sciences (1968-1968).
Lynch, Robert R., Jr., B.S., (Florida) Director, Information Services (1964-1966).

Lynn, Kenneth, Assistant Trainer (1964-1967).
Lyons, Henry R., M.D. (Georgetown) Associate Professor in Psychiatry (1960-1967).
Mable, Phyllis Louise, M.S., Assistant Director, Division of Housing (1959-1967).
Macaulay, Neill Webster, Jr., Ph.D. (Texas), Associate Professor of History (1965-1969).
MacCullough, Douglas Bruce, M.A., Assistant Registrar (1966-1966).
MacDonald, Scott Messinger, M.A., Interim Assistant Professor of Humanities (1966-1969).
Macdonald, William Dickson, S. J. D. (Michigan), Professor of Law (1948-1951).
Mackenzie, Richard S., D.D.S. (Michigan), Ph.D. (Pittsburgh), Professor and Chairman, Division of Educational Research, College of Dentistry, (1969-1969).
Maclachlan, Emily Stevens, M.A., Assistant Professor of Social Sciences (1961-1965).
MacMillan, David Merritt, M.D. (Florida) Resident in Surgery (1968-1968).
MacNaughton, Robert J., Jr., M.D. (University of North Carolina), Intern in General Surgery (1969-1969).
Maddox, Robert, Ph.D., (Texas), Assistant Professor of Management (1969-1969).
Madigan, John Regan, Ph.D. (Illinois Inst. of Tech.), Professor of Electrical Engineering (1969-1969).*
Maduro, Lois Anne, M.A., Assistant Professor of Occupational Therapy, V.A.[1], (1966-1967).
Magie, Robert Odgen, Ph.D. (Wisconsin), Professor (Plant Pathologist), IFAS, Gulf Coast Experiment Station (1945-1945).
Mahar, Dennis, M.A., Interim Instructor of Economics (1968-1968).
Mahig, Joseph, Ph.D. (Ohio State), Associate Professor of Mechanical Engineering (1967-1967).
Mahon, John Keith, Ph.D. (U.C.L.A.), Professor of History and Chairman of Department (1954-1966).
Mahoney, John Friend, Ph.D. (Lehigh), Associate Professor of Industrial and Systems Engineering—Pensacola (1960-1966).
Makley, John T., M.D. (Case Western Reserve), Research Fellow in Orthopedic Surgery (1969-1969).
Malagodi, Edward F., Jr., Ph.D. (University of Miami), Assistant Professor of Psychology (1968-1968).
Malickson, David L., M.S., Interim Assistant Professor of Journalism and Communications (1969-1969).
Malo, Simon Edward, Ph.D., (Florida), Assistant Professor (Assistant Horticulturist), IFAS, Sub-Tropical Experiment Station (1964-1964).
Maloney, Frank Edward, J.D. (Florida), Professor of Law and Dean of the College of Law (1946-1958).
Malvern, Lawrence Earl, Ph.D. (Brown University), Professor of Engineering Science and Mechanics (1969-1969).
Malvern, Marjorie, Ph.D. (Michigan State University), Interim Assistant Professor of Humanities (1969-1969).
Malzone, William F., M.D., (University of Florida), Resident in Medicine (1969-1969).
Mandell, Jeffrey Howard, M.A., Interim Assistant Professor of Insurance (1969-1969).
Manders, Arnfinn Moe, Ph.D. (Polytechnic Institute of Brooklyn), Associate Professor of Electrical Engineering, GENESYS—Port Canaveral (1964-1964).
Manning, John Hynes, Ph.D., (Oklahoma State Univ.) Professor of Building Construction (1969-1969).
Mans, Rusty V., Ph.D., (University of Florida), Professor of Microbiology and Radiology (1969-1969).
Mansell, Robert S., Ph.D (Iowa), Assistant Soil Physicist, Agricultural Experiment Stations (1968-1968).
Maples, William R., Ph.D. (Texas), Assistant Professor of Anthropology (1968-1968).
Marani, Jean, Ph.D. (Ohio), Assistant Professor of Education, (1967-1967).
Maraulia, Matthew Daniel, B.S., Instructor (Assistant in Chemistry), IFAS, FCC, Citrus Experiment Station (1960-1960).
Marban, Jorge Angel, Ph.D. (University of Florida), Assistant Professor of Industrial and Systems Engineering (1969-1969).

Marcus, Neal W., M.D. (Washington U., St. Louis), Resident in Surgery (1967-1967).
Marcus, Robert Brown, Ed.D. (Florida), Professor of Physical Sciences and Geography, Adviser (1955-1968).
Maren, Thomas H., M.D. (Johns Hopkins University), Professor and Chairman of Department of Pharmacology (1955-1955).
Margolis, Maxine Luanna, B.A., Interim Assistant Professor of Anthropology (1969-1969).
Margulis, Stephen T., Ph.D. (University of Minnesota), Assistant Professor of Psychology (1965-1965).
Marinetti, Elizabeth Amelita, M.A., Interim Instructor of French (1969-1969).
Marinetti, Walter Tullio, M.A., Assistant Professor of Humanities (1964-1965).
Markel, Norman N., Ph.D. (Chicago), Associate Professor of Speech, Psychology, and Anthropology (1964-1968).
Marks, Nancy C., B.S., Instructor of Occupational Therapy; Director of Occupational Therapy, (1969-1969).
Marlatt, Robert Bruce, Ph.D., (Arizona), Associate Professor (Associate Plant Pathologist), IFAS, Sub-Tropical Experiment Station (1964-1964).
Marlowe, Jr., G. A. Ph.D., (University of Maryland), Professor (Chairman Department of Vegetable Crops and Horticulturist), IFAS (1969-1969).
Marousky, Francis J., Ph.D., (Virginia), Assistant Professor (Assistant Horticulturist), IFAS, USDA, Gulf Coast Experiment Station (1967-1967).
Marriott, Henry J.L., M.D., (Oxford University), Clinical Professor of Pediatrics (1969-1969).
Marsh, Burton W., M.D. (Florida) Resident in Surgery (1968-1968).
Marshall, Floreine, A., B.S., Clinical Associate, College of Nursing (1968-1968).
Marshall, Sidney Paul, Ph.D. (Minnesota), Professor of Dairy Science and Dairy Nutritionist, Agricultural Experiment Stations (1942-1958).*
Martin, Frank G., Ph.D. (North Carolina State College), Associate Professor of Statistics (1964-1964).
Martin, M. Herbert, M.D. (Duke), Resident in Surgery (1967-1967).
Martin, Samuel P., M.D. (Washington, Missouri), Professor of Medicine (1956-1956).
Martin, Shirley D., MSN, Assistant Professor, College of Nursing (1962-1969).*
Martin, Thomas E., M.S.C.E., Assistant Professor of Building Construction (1964-1969).
Martinez, Jesus E., A.E. (Univ. of Havana), Research Assistant in Medicine (1966-1966).
Martinez, Jorge, Ph.D. (Tulane), Postdoctoral Fellow, Mathematics (1969-1969).
Marvel, Mason Edwin, M.S., Associate Vegetable Crops Specialist, Agricultural Extension Service (1957-1963).
Marzke, Frederick Otto, Ph.D. (Michigan State) Associate Professor of Entomology, USDA Insect Attractant Behavior Research Lab. (1969-1969).
Masagatani, Gladys Nobuko, B.A., Instructor of Occupational Therapy (1968-1968).
Mascaro, Guillermo F., Ph.D. (Princeton University), Assistant Professor of Psychology (1968-1968).
Mase, Darrel Jay, Ph.D. (Columbia), Dean of the College of Health Related Professions and Professor of Speech (1950-1958).
Maskin, Meyer, H., M.D. (Wayne University) Professor of Psychiatry (1968-1968).
Maslin, Paul E., Ph.D. (Florida), Interim Assistant Professor of Zoology (1969-1969).
Mason, John F., M.D., Clinical Associate in Psychiatry (1968-1968).
Massey, Thomas, M.Ed., Teacher, P.K. Yonge Laboratory School (1966-1969).
Matherly, Walter, Jr., M.A. (Duke), Director of Physical Planning (1969-1969).
Mathis, William Kary, Jr., Ph.D., (Texas A&M University), Assistant Professor (Assistant Economist), IFAS (1969-1969).
Matthews, Charles Arnold, Ph.D. (Virginia), Professor of Finance and Chairman, Department of Finance and Insurance (1948-1957).
Matthews, Richard Finis, Ph.D. (Cornell), Associate Food Technologist, Agricultural Extension Service (1965-1965).
Maturo, Frank J. S., Jr., Ph.D. (Duke), Associate Professor of Biological Sciences and Zoology (1958-1964).*
Mauceri, Arthur A., M.D. (Georgetown University), Resident in Medicine (1969-1969).

Mauderli, Max Otto, Ph.D. (Pennsylvania), Associate Professor of German (1948-1954).
Mauderli, Walter, D.Sc. (Zurich), Professor of Radiology; Professor of Environmental Engineering (1960-1965).
Mauldin, Richard Daniel, Ph.D. (Texas), Assistant Professor of Mathematics (1969-1969).
Mautz, Robert Barbeau, LL.B. (Yale), LL.D. (Jacksonville University), L.H.D. (University of Florida), Professor of Law (1950-1963).*
Maxwell, Wayne P., M.Ed. Interim Teacher, P.K. Yonge Laboratory School, (1969-1969).
May, Frank Pierce, Ph.D. (Florida), Professor of Chemical Engineering (1955-1969).
Mayberry, Maurice E., B.S.B.A., Director, University Placement Office (1953-1953).
Mayer, Marion Sidney, Ph.D. (Texas A & M), Assistant Professor of Entomology (1966-1966).
Mayl, Nathan, M.D., Standford University), Resident in Surgery (1969-1969).
Mayo, Glen, M.D. (Washington University), Resident in Radiology (1969-1969).
Mayo, Thomas Tabb, IV, Ph.D. (Virginia), Visiting Professor of Physics (1969-1969).
McAlister, Lyle Nelson, Ph.D. (California), Professor of History (1950-1963).*
McAneny, Donald Crosby, M.H.A., Assistant Professor of Health and Hospital Administration, College of Health Related Professions (1967-1967).
McBride, Martha Coachman, M.Ed., Counselor, Division of Housing (1969-1969).
McBride, Robert Green, B.A., Counselor, Division of Housing (1967-1967).
McCabe, Susan P., M.N., Instructor, College of Nursing (1968-1968).
McCachren, James Roland, M.A., Assistant Professor of Physical Education, Assistant Basketball Coach (1946-1946).
McCaldin, Roy Oeland, Ph.D. (Florida), Professor of Environmental Engineering (1966-1966).
McCaleb, John Earl, Ph.D. (Texas A&M), Associate Professor (Associate Agronomist), IFAS, Range Cattle Experiment Station (1955-1963).
McCall, James Clayton, M.S.A., Rural Areas Development Specialist, Agricultural Extension Service (1961-1961).
McCarthy, Kevin Jeffery, M.D. (New York University) Resident in Medicine (1968-1968).
McCarthy, Kevin Michael, M.A., Assistant Professor of English (1969-1969).
McCaulley, Mary Hawley, Ph.D. (Temple), Assistant Professor of Clinical Psychology, (1964-1965).
McClamroch, James M., M.D. (Emory) Clinical Instructor in Medicine (1959-1959).
McClelland, K. D., Ph.D. (Florida), Postdoctoral Fellow in Speech (1969-1969).
McCloud, Darell Edison, Ph.D. (Purdue), Chairman and Professor of Agronomy, IFAS (1948-1965)*
McCollough, Robert H., M.D. (Florida) Clinical Instructor in Medicine (1967-1968).
McCollough, William Andrew, M.A., Interim Instructor of Finance (1969-1969).
McCornack, Andrew Adam, M.S., Assistant Professor (Assistant Horticulturist), IFAS, FCC, Citrus Experiment Station (1953-1953).
McCown, Jack Thomas, Ph.D. (North Carolina), Professor (Extension District Agent), IFAS, (1951-1967).
McCoy, Francis Tyrone, J.D. (Florida), Associate Professor of Law (1955-1965).
McCraw, John B., M.D., (University of Missouri), Resident in Surgery (1968-1968).
McCrory, Charles F., M.D. (Tennessee) Clinical Associate in Ophthalmology (1968-1968).
McCullen, John Louis, M.A., Interim Instructor in Social Sciences and Humanities (1964-1964)*
McCullers, Levis Duval, M.A., Lecturer of Accounting (1968-1968).
McCune, Jerry Herbert, M.A., Instructor and Director of Language Laboratory (1969-1969).
McCune, Shannon, Ph.D. (Clark University), Professor of Geography and Chairman of the Department (1969-1969).
McDonald, Ellen Marie, M.A., Instructor, P. K. Yonge Laboratory School (1957-1962).
McDonald, Frances M., B.S. in L.S., Assistant Librarian, Catalog (1954-1962).*
McDonald, Nancy F., M.S.W., Assistant Professor of Psychiatry (Social Work) (1960-1965).

McDonough, John Robert, J.D. (Florida), Assistant Law Librarian, College of Law (1969-1969).
McElwee, Edgar Warren, Ph.D. (Ohio State), Professor (Ornamental Horticulturist), IFAS (1953-1956).
McEver, Mary Lou, Ed.D., (Florida), Assistant Professor of Rehabilitation Counseling, (1969-1969).
McFadden, Samuel Edgar, Jr., Ph.D. (Virginia), Assistant Professor (Assistant Ornamental Horticulturist), IFAS (1950-1950).
McFadyen, Donald Carl, B. A., Interim Teacher, P. K. Yonge Laboratory School (1966-1966).
McFarlane, James, B.Des., Assistant Professor of Architecture (1958-1966).
McFarlane, Judy D., MN, Instructor, College of Nursing (1969-1969).
McFerrin, John Berry, Ph.D. (North Carolina) Professor of Finance, Director of Graduate Studies in College of Business Administration (1937-1968).
McGee, Jean E., A.B. (Rollins College), Research Assistant in Psychiatry (1969-1969).
McGee, Richard Keith, Ph.D. (Vanderbilt), Associate Professor of Clinical Psychology and Psychology, (1964-1967).
McGinnis, Nancy, M.A., (University of Florida), Academic professional in Psychiatry (1965-1969).
McGowan, William Albert, B.S., Assistant Football Coach (1965-1965).
McGraw, Frank William, Sr., M.Ed., Instructor, P. K. Yonge Laboratory School (1960-1964).
McGuigan, James E., M.D. (St. Louis School of Medicine), Professor and Chief of Gastroenterology, Department of Medicine and Professor of Neurobiology (1969-1969).
McGuire, Vincent, Ed.D. (Florida), Professor of Education (1947-1960).*
McIntyre, Archibald Edward C., B.S.A. (Florida), Manager Florida Foundation Seed Producers, Inc., IFAS, (1969-1969).
McKee, Vernon C., Ph.D. (Iowa State), Associate Professor (Director of Program Planning), IFAS (1969-1969).
McKenna, Marion, E., M.Ed., Teaching Associate, College of Nursing (1968-1968).
McKerns, Kenneth Wilshire, Ph.D. (McGill University), Professor of Obstetrics and Gynecology (1960-1965).
McKinney, George, Assistant Football Coach (1969-1969).
McKinney, Meredith, M.D., (Indiana University), Resident in Surgery (1968-1969).
McLean, Claudia Louan, M.A., Interim Instructor of Art (1969-1969).
McLean, Frederick W., M.D. (Marquette) Assistant Professor of Obstetrics and Gynecology (1964-1968).
McLean, James P., M.B.A., Administrative Assistant (1965-1965).
McLendon, Ethel M., M.A. in L.S., Assistant Professor, Library Science (1965-1965).
McMillan, Paul Clifford, B.A., Building Service Superintendent (1958-1961).
McMillan, Robert Thomas, Jr., Ph.D., (Washington State), Assistant Professor (Assistant Plant Pathologist), IFAS, Sub-Tropical Experiment Station (1967-1967).
McMillin, Marvin R., Ed.D. (Florida), Assistant Professor of Education (1970-1970).
McMullan, Patricia, M.S., Research Associate, College of Nursing (1968-1968).
McNab, Brian Keith, Ph.D. (Wisconsin), Associate Professor of Zoology (1961-1965).
McNairy, Alice Hall, M.Ln., Assistant Librarian, Acquisitions (1953-1961).
McNeely, Arthur M., M.Ag., Purchasing Agent, Health Center (1952-1963).
McPherson, William Kenneth, M.S., Professor of Agricultural Economics and Agricultural Economist, Agricultural Experiment Stations (1951-1951).
McPherson, Woodrow Wilson, Ph.D. (Harvard), Graduate Research Professor in Agricultural Economics (1962-1962).
McQuitty, John V., Ph.D. (Kentucky), University Examiner and Professor of Psychology (1929-1935).
McQuown, O. Ruth, Ph.D. (Florida), Associate Professor of Political Science (1961-1966).
McRae, John Malcolm, M.Arch., Instructor of Architecture (1967-1967).
McRae, Thomas Garland, M.S., Research Associate in Aerospace Engineering (1968-1968).

Mead, Charles A., M.D., (George Washington University), Assistant Professor of Surgery (1961-1969).
Mead, Frank Waldreth, M.S., Assistant Professor of Entomology (1966-1966).
Meade, Don E., M.A., Interim Instructor in Journalism and Communications (1967-1967).
Meadows, Edwin Harris, Jr., M.Ag., Research Associate in Chemical Engineering (1969-1969).
Meadows, Richard L., M.D. (University of Pennsylvania), Clinical Associate in Psychiatry (1965-1965).
Meakin, John Charles, Ph.D. (Monash), Visiting Assistant Professor of Mathematics (1969-1969).
Means, Larry W., Ph.D. (Claremont) Postdoctoral Fellow, Center for Neurobiological Sciences (1968-1968).
Media, Jose E., D.D.S. (Maryland), Dean and Professor of Clinical Dentistry, College of Dentistry, 1967-1969.
Meek, Phyllis M., Ed.D. (Florida), Associate Dean for Student Development (1966-1969).
Megill, Kenneth Alden, Ph.D. (Yale), Assistant Professor of Philosophy (1966-1966).
Meigs, Joseph Avery, M.A., Interim Instructor in English (1966-1966).
Menasco, Willie Travis, M.Ag. (Florida State), Assistant Professor, (Area Assistant Farm Management Specialist, IFAS, (1969-1969).
Mendenhall, Hiram, M.D., (University of California), Assistant Professor of Obstetrics and Gynecology (1966-1966).
Mendenhall, Von Thatcher, Ph.D. (Oregon State University), Assistant Professor (Assistant Food Scientist), IFAS (1969-1969).
Mendenhall, William, Ph.D. (North Carolina State College), Professor of Statistics and Chairman of Department (1963-1963).
Menke, Charlotte Nadine, B.S.B.A., Assistant in Research, Bureau of Economic and Business Research (1966-1966).
Menke, Warren W., Ph.D., (Purdue), Associate Professor of Management (1967-1969).
Merkel, Edward Paul, B.S., Instructor of Entomology (1966-1966).
Merrill, John Ellsworth, Ph.D. (Princeton), Visiting Professor of Astronomy (1969-1969).
Merritt, Harry C., Jr., M.S., Associate Professor of Architecture (1960-1968).
Mesa, Rosa Quintero, M.S.L.S., Assistant Librarian, Documents (1961-1961).
Mesch, Barry, B.S., Interim Assistant Professor of Religion (1969-1969).
Messer, Henry H., M.D. (Florida) Resident in Obstetrics and Gynecology (1968-1968).
Meurlott, Kay Barry, M.A., Assistant Editor, Agricultural Experiment Stations; Assistant Communications Specialist, Agricultural Extension Service (1963-1963).
Meyerholz, George William, D.V.M. (Iowa State), Associate Professor (Extension Veterinarian), Institute of Food and Agricultural Sciences (1968-1968).
Meyers, Harry George, M.S.A., Assistant Professor (Assistant Ornamental Horticulturist), IFAS (1966-1966).
Micha, David Allan, Ph.D. (Uppsala), Associate Professor of Chemistry and Physics (1969-1969).
Michael, Max, M.D. (Harvard) Clinical Professor of Medicine and Assistant Dean for Jacksonville Hospitals Educational Programs (1959-1968).
Michael, Warren T., B.S.A., Assistant Director of Physical Plant (1966-1966).
Michalak, Daniel, Ed.D. (Wayne State University), Assistant Professor of Education (1968-1968).
Mifflin, Martin David, Ph.D. (Nevada), Associate Professor of Geology (1969-1969).
Mikusinski, Jan, Ph.D. (Cracow), Visiting Professor of Mathematics (1968-1968).
Milam, James Riley, B.S.A., Manager of Laboratories, Bacteriology (1963-1963).
Miles, George G., M.D., (Long Island), Clinical Instructor in Anesthesiology (1967-1969).
Miles, Guy Simpson, Ph.D. (Vanderbilt), Associate Professor of English (1957-1957).
Millar, Jane Carree, M.A., Assistant Professor of Physical Education (1948-1952).
Miller, Billie L., M.D., (Chicago), Instructor and Trainee in Pediatrics (1967-1969).

Miller, Carol Raymond, Ph.D. (Clemson) Assistant Professor (Assistant Plant Pathologist) Institute of Food and Agricultural Sciences (1964-1964).
Miller, Donald Richard, Ph.D. (University of Toronto), Associate Professor of Industrial and Systems Engineering, GENESYS—Port Canaveral (1969-1969).
Miller, Ernest C., III, M.D. (Tulane University), Clinical Associate in Psychiatry (1965-1965).
Miller, George H., Jr., M.D. (Pennsylvania), Professor of Surgery and Chief of the Division of Urology (1958-1964).
Miller, Howard N., Ph.D. (California), Professor (Plant Pathologist) Institute of Food and Agricultural Sciences (1948-1955).
Miller, James W., Jr., M.S.F., Professor of Logging and Lumbering and Forester, Agricultural Experiment Stations (1936-1951).
Miller, Jerome T., B.B.C., Interm Instructor of Architecture (1969).
Miller, John William, Ph.D. (Florida), Assistant Plant Pathologist, Div. of Plant Industry (1968-1968).
Miller, Richard H., M.D., (University of Florida), Intern in Medicine (1969-1969).
Miller, Warren B., M.D., (Cornell), Clinical Associate in Psychiatry (1967-1967).
Millet, Patricia C., M.A., (University of Florida), Research Assistant in Psychiatry (1969-1969).
Millikan, James D., Ph.D. (Yale), Assistant Professor of Philosophy (1967-1967).
Million, Rodney R., M.D., (Indiana Medical School), Professor of Radiology (1968-1969).
Milner, Gilbert C., M.D., (Texas), Resident in Psychiatry (1969-1969).
Milton, James Edmund, Ph.D. (Florida), Assistant Professor of Aerospace Engineering (1966-1966).
Milton, Ruth Louise, M.S., Associate Professor (Associate State 4-H Club Agent), IFAS, (1952-1966).*
Mincey, Wilbur Franklin, Assistant Professor (Assistant Meteorologist), IFAS, USWB, Weather Forecasting Service (1959-1959).
Minor, John D., M.D., (University of Tennessee), Resident in Pediatrics (1967-1969).
Mitchell, Roy Ishman, M.Ed., Coordinator for Disadvantaged Students and Minority Groups (1969-1969).
Mitchell, Vervil Louene, M.S., Assistant Professor (Extension Farm Mgt. & Family Economics Specialist), IFAS, (1965-1965).
Mockel, Andre Jacques, Ph.D. (Universite Libre de Bruxelles), Assistant Professor of Nuclear Engineering Sciences (1966-1968).
Modell, Jerome H., M.D., (University of Minnesota), Professor and Chairman of Anesthesiology (1969-1969).
Moffat, Robert C. L., LL.M. (University of Sydney), Associate Professor of Law (1966-1968).
Monif, Gilles R. G., M.D. (Boston University) Assistant Professor of Obstetrics and Gynecology (1968-1968).
Monsees, Candace Clark, M.A., Interim Instructor in Social Sciences (1969-1969).
Monsees, David M., M.A. (Chicago), Assistant Professor of Sociology (1969-1969).
Montelaro, James, Ph.D. (Florida), Vegetable Crops Specialist, Agricultural Extension Service (1952-1965).*
Montgomery, Hoyle Fleming, Jr., M.A. in L.S., Assistant Librarian, Reference and Bibliography (1962-1966).
Montgomery, James Houston, M.A.L.S., Assistant Librarian, Catalog (1968-1968).
Monti, Laura Virginia, M.S.L.S., Assistant Librarian and Chairman of Special Collections Department (1957-1962).*
Moody, Linda E., MN, Interim Instructor, College of Nursing (1969-1969).
Moon, Ben Lane, B.S.B.A., Editor, Bureau of Economic and Business Research (1966-1966).
Mooney, Ernest Gordon, M.P.E., Assistant Professor of Physical Education (1945-1956).
Mooneyham, Alcus Ray, B.S.B.A., Assistant Director, Department of Correspondence Study, Division of Continuing Education (1966-1967).
Moore, Alan Coningsby, M.Ed., Associate Professor of Physical Education, (1953-1969).

Moore, Edwin Lewis, Ph.D., (Massachusetts State), Professor (Chemist) IFAS, FCC, Citrus Experiment Station (1951-1951).
Moore, G. Paul, Ph.D. (Northwestern), Professor of Speech; Chairman, Department of Speech (1961-1961).
Moore, Granville Alexander, Ph.D. (Columbia), Associate Professor of Anthropology (1966-1969).
Moore, James F., M.D. (University of Arkansas), Intern in Surgery (1969-1969).
Moore, John Edward, Ph.D. (Ohio), Associate Professor of Animal Science and Associate Animal Nutritionist, Agricultural Experiment Stations (1961-1966).
Moore, Theral Orvis, Ph.D. (Missouri), Associate Professor of Mathematics (1955-1966).
Moore, Thomas, M.D., (University of Florida), Clinical Instructor in Surgery (1967-1969).
Moore, William, M.D., (Emory), Clinical Assistant Professor of Surgery (1964-1969).
Moore, William Edgar, Ph.D. (Peabody), Professor of Comprehensive Logic and Chairman of Department; Director of Counseling, University College (1930-1962).*
Moorer, Sam H., Jr., M.D. (Florida) Resident in Pediatrics (1967-1968).
Morefield, John Daniel, M.A., Instructor in English (1968-1968).
Moreland, Alvin F., D.V.M. (Georgia) Associate Professor of Experimental Medicine and Director of Animal Department (1963-1968).
Morera, Julio E., M.D., (University of Miami), Clinical Instructor of Medicine (1968-1969).
Morgan, Alice Esther, M.Ed., Assistant Professor of Education (1963-1968).
Morgan, Bernard, L., M.D., (London), Clinical Assistant Professor of Surgery (1968-1969).
Morgan, James I., Ed.D. (Florida), Counseling Psychologist, University Counseling Center (1967-1967).
Morgan, Martha Jane, M.S., Assistant Librarian, Engineering and Physical Sciences Library (1967-1967).
Morgan, Philip Bone, Ph.D. (Kansas State), Professor of Entomology and Entomologist, USDA Entomology Research Laboratory (1965-1965).
Morgan, William C., M.D.(University of Florida), Resident in Pediatrics (1969-1969).
Morgan, William Herman, Ph.D. (Florida), Associate Professor of Environmental Engineering (1957-1968).
Morrall, John Fripp, A.B., Interim Assistant Professor of Economics (1969-1969).
Morris, Alton Chester, Ph.D. (North Carolina), Professor of English and Acting Chairman of the Department (1927-1969).
Morris, Anne Elsbeth, M.S., M.A., Assistant Professor, IFAS (1869-1969).
Morris, Charles William, Ph.D. (Chicago), Graduate Research Professor of Philosophy (1958-1958).
Morris, Joseph L., M.D. (Yale) Resident in Surgery (1968-1968).
Morris, Joe Scott, LL.M., (Harvard) Assistant Professor of Law (1967-1967).
Morris, Kenneth D., B.S.B.A., Assistant in Administration (1964-1964).
Morrison, Clayton Allison, M.S.E., Assistant Professor of Mechanical Engineering (1962-1966).
Morrison, James F., Ph.D. (Stanford), Assistant Professor of Political Science (1966-1969).
Morrow, Matthew E., M.D. (Temple) Clinical Assistant Professor in Medicine (1963-1963).
Morse, Anita L., J.D. (Indiana), Assistant Professor of Law (1969-1969).
Morse, Richard Hugh, M. Arch., Assistant Professor of Architecture (1967-1967).
Morse, Walter Priest, Ph.D. (Florida), Associate Professor of Mathematics (1952-1957).
Mortensen, John Alan, Ph.D. (Cornell), Associate Professor (Associate Geneticist), IFAS, Watermelon and Grape Investigations Laboratory (1960-1968).
Morton, William McDonald, Ph.D. (Missouri), Assistant Professor (Assistant Ornamental Horticulturist), IFAS, Plantation Field Laboratory (1968-1968).

Moscovici, Carlo, Ph.D. (Rome), Associate Professor of Microbiology and Ophthalmology (1967-1967).
Moscovici, Giovannella, Research Assistant in Ophthalmology (1968-1968).
Moseley, Thaddeus M., M.D. (Vanderbilt), Clinical Associate Professor of Surgery (1968-1969).
Moss, Harold Gene, M.A., Assistant Professor of English (1969-1969).
Most, Bertha M., M.D. (Pittsburgh), Assistant Professor of Psychiatry and Pediatrics (1967-1968).
Mott, Donald D., M.S., Assistant Dean for Student Development (1962-1969).
Mott, Gerald Oakley, Ph.D. (Cornell), Professor of Agronomy, IFAS (1968-1968).
Mottola, William C., Ph.D. (Purdue), Assistant Professor of Psychology and Clinical Psychology (1968-1968).
Mount, Gary Arthur, Ph.D. (Oklahoma State), Assistant Professor of Entomology (1966-1966).
Moxley, Clisby Carey, Ph.D (Kentucky), Economist, Agricultural Extension Service (1955-1961).
Moye, Hugh Anson, Ph.D. (Florida), Assistant Professor (Assistant Chemist), IFAS (1965-1965).
Mrkvicka, Gail Jane, M.S. Counselor, Division of Housing (1966-1966).
Muehlner, Felix, U.J.D. (Frederick William, Germany), Professor of Management (1950-1968).*
Muga, Marvin Luis, Ph.D. (Texas), Associate Professor of Chemistry and Physics (1960-1968).
Mugar, John H., M.A., Interim Assistant Professor of Historv (1967-1967).
Mukherjee, Asish Ranjan, D.Phil. (Sc.) (Calcutta), Post Doctoral Fellow in Chemical Engineering (1966-1966).
Mulkey, Marcia Elizabeth, M.A., Interim Instructor of Speech (1969-1969).
Mull, Leon Edmund, Ph.D (Iowa State), Professor of Dairy Manufacturing and Microbiologist, Agricultural Experiment Stations (1940-1956).
Mullin, Joe Edward, B.S., Statistician, Agricultural Experiment Stations (1962-1962).
Mullin, Robert Spencer, Ph.D. (Minnesota), Professor (Plant Pathologist), Institute of Food and Agricultural Sciences (1958-1958).
Mullins, John Thomas, Ph.D. (North Carolina), Associate Professor of Biological Sciences and Botany (1959-1965).*
Muma, Martin Hammond, Ph.D. (Maryland), Professor (Entomologist), IFAS, Citrus Experiment Station (1951-1958).
Mundy, Belvey Washington, Ph.D. (Indiana), Associate Professor of Physical Sciences and Chemistry (1955-1956).
Munger, Frank J., Ph.D. (Harvard), Professor of Political Science (1969-1969).
Muniz, Carlos E., M.D. (University of Havana), Assistant Professor in Psychiatry (1969-1969).
Munson, John B., Ph.D. (Rochester), Assistant Professor in Physiology and Psychology (1966-1969).
Munson, R. William, Jr., B.Arch., Physical Planning Consultant, (1953-1968).*
Murphey, Milledge, Ph.D. (Oklahoma A & M), Professor of Entomology (1947-1965).
Murphree, Albert Alexander, B.A. (Oxford), Associate Professor of English (1934-1955).
Murphree, Alice H., M.A., Research Assistant in Medicine (1964-1968).
Murphree, Clyde Elwyn, D.P.A. (Harvard), Associate Professor of Agricultural Economics and Associate Agricultural Economist, Agricultural Experiment Stations (1951-1957).
Murphy, Thomas Frost, M.B.A., Lecturer and Director of Business Associates, College of Business Administration (1969-1969).
Murray, Ernest Don, M.F.A., M.Ed., Assistant Professor of Humanities (1968-1969).
Muschlitz, Earle Eugene, Jr., Ph.D. (Pennsylvania State), Professor of Chemistry (1951-1958).*
Musella, Lilli Heddi, Ph.D. (McGill University) Research Associate in Medicine (1968-1968).
Musella, Rosario, M.D. (U. of Naples, Italy), Assistant Professor of Surgery (1967-1967).
Mushak, Paul, Ph.D. (University of Florida). Postdoctoral Fellow in Pathology (1969-1969).

Muth, Eginhard Joerg, Ph.D. (Polytechnic Institute of Brooklyn), Associate Professor of Industrial and Systems Engineering (1969-1969).
Muthard, John Edward, Ph.D. (Ohio State), Head, Rehabilitation Research Institute and Professor of Education and Rehabilitation Counseling (1967-1968).
Muther, Thomas F., Ph.D. (University of Leeds), Assistant Professor in Pharmacology and Therapeutics (1963-1965).
Myers, Forrest Earl, M.Ag. Professor (Assistant Dean for Extension), IFAS (1948-1960).*
Myers, Francis Colville, M.A., Assistant Professor of Mathematics, Adviser (1956-1956).
Myers, Gardiner, Ph.D. (Berkeley), Assistant Professor of Chemistry (1965-1965).
Myers, Julian Mostella, M.S.A., Professor (Agricultural Engineer), IFAS, (1947-1960).
Myers, Lester H., Ph.D. (Purdue), Assistant Agricultural Economist, FCC, IFAS (1968-1968).
Myers, Orlo E., Ph.D. (Washington), Associate Professor of Aerospace Engineering (1965-1965).
Myers, Robert Brown, Ed.D. (Florida), Professor of Education (1953-1969).*
Myrick, Robert DeWayne, Ph.D. (Arizona), Assistant Professor of Education (1967-1967).
Myrick, Sam E., M.D. (Duke), Clinical Assistant Professor of Surgery (1969-1969).
Nackman, Lee Martin, M.S., Assistant Professor of Pharmacy (Courtesy), (1967-1967).
Nadeau, Robert Lee, M.A., Interim Instructor in English (1967-1967).
Nair, K. C., M.S., (Missouri), Interim Assistant Pharmacologist, Veterinary Science, IFAS, (1969-1969).
Nanzetta, Philip, Ph.D. (Illinois), Assistant Professor of Mathematics (1967-1967).
Nashiro, Nancy Otome, M.Ed., Assistant Professor of Occupational Therapy (1968-1968).
Nasser, DeLill S., Ph.D. (Purdue University), Assistant Professor (Assistant Bacteriologist), IFAS (1967-1967).
Nation, James Lamar, Ph.D. (Cornell), Associate Professor of Biological Sciences, Entomology and Zoology, Adviser, Agricultural Experiment Station (1960-1965).
Nattress, John Andrew, M.S.I.E., Professor of Industrial and Systems Engineering, Associate Dean of the College of Engineering (1957-1965). Acting Dean of the College of Engineering (1966-1968).
Naylor, John Geoffry, M.F.A., Associate Professor of Art (1959-1968).
Neal, Fred Carlton, D.V.M. (Texas A&M), M.S., Associate Professor (Associate Veterinarian), Institute of Food and Agricultural Sciences (1962-1966).
Neale, James Ralph, Jr., Ed.D. (Columbia), Associate Professor of English, Adviser (1946-1963).
Neder, George A., M.D., Clinical Instructor in Medicine (1967-1967).
Neel, Rufus Glenn, M.D. (Mississippi), Resident in Surgery (1968-1968).
Neel, John Howard, M.A.E., Interim Instructor of Education (1969-1969).
Neff, Thomas O'Neil, M.S.E., Associate Professor of Mechanical Engineering (1946-1952).
Neilson, John Taylor, Ph.D. (Glasgow), Assistant Professor (Assistant Parasitologist), Institute of Food and Agricultural Sciences (1968-1968).
Nelson, Charles Warren, Ph.D. (Maryland), Associate Professor of Mathematics and Education (1966-1966).
Nelson, Edward W., M.D. (Tulane University), Resident in Medicine (1969-1969).
Nelson, John Franklin, M.D. (Florida) Clinical Associate in Psychiatry (1965-1968).
Nelson, Robert Elgin, D.B.A (Indiana), Assistant Professor of Finance (1969-1969).
Nelson, Robert Norton, Ph.D. (M.I.T.), Interim Professor of Chemistry (1969-1969).
Nelson, Wallace Martin, Ph.D. (Florida), Associate Professor of Social Sciences (1961-1967).*
NeSmith, James, Ph.D. (North Carolina State), Soils Specialist, Agricultural Extension Service (1950-1958).*
Nettles, Victor Fleetwood, Ph.D. (Cornell), Professor, (Horticulturist), Institute of Food and Agricultural Sciences (1938-1968).
Netzloff, Michael L., M.D. (University of Florida) Intern in Pediatrics (1969-1969).

Nevill, Gale Ervin, Jr., Ph.D. (Stanford), Professor of Engineering Science and Mechanics and Chairman of the Department (1964-1968).
Nevis, Arnold H., Ph.D., M.D. (Harvard), Associate Professor of Medicine; Associate Professor of Electrical Engineering (1960-1967).
New, Melvyn, Ph.D. (Vanderbilt), Assistant Professor of English (1966-1966).
Newbill, Mickie, Ph.D. (Michigan State), Associate Professor of Journalism and Communications, TV Producer-Director and Director, Radio Center (1956-1966).*
Newcomb, Arthur Perry, Jr., Ph.D. (Stanford), Associate Professor of Education (1963-1963)
Newcomb, Thomas, M.D. (Pittsburg), Professor of Medicine and Acting Chairman of Biochemistry, Associate Chief of Staff of VAH, Gainesville (1959-1969).
Newell, John, Ph.D. (Texas), Associate Professor of Education (1967-1968).
Newhall, William Freeman, Ph.D. (Bryn Mawr), Professor (Biochemist), IFAS, Citrus Experiment Station (1952-1967).
Newlands, David Michael, M.S.E.E., Research Associate in Electrical Engineering (1969-1969).
Newman, Arthur, Ed.D. (Indiana University), Assistant Professor of Education (1968-1968).
Newman, E. Gustave, M.D. (Duke) Associate Professor of Psychiatry (1961-1968).
Newmark, Emanuel, M.D. (Duke), Resident in Ophthalmology (1967-1967).
Neylans, William Elfe, B.A., Assistant Director, Division of Housing (1962-1964).
Nichelson, Jack C., M.F.A., Assistant Professor of Art (1961-1965).
Nickell, William B., M.D. (Alabama), Resident in Surgery (1966-1967).
Nickelson, William Richard David, B.S.E., Assistant Professor of Electrical Engineering (1957-1966).
Nicol, David, Ph.D. (Stanford), Associate Professor of Geology (1965-1965).
Niddrie, David Lawrence, Ph.D. (University of Manchester, England), Professor of Geography (1966-1966).
Nielsen, Donald W., Ph.D. (Wayne State), Research Associate in Speech (1968-1969).
Nims, Peter E., M.D. (Ohio State), Resident in Psychiatry (1969-1969).
Nininger, John Henry, Jr., B.S.B.A., Assistant in Administration, Agricultural Extension Service (1962-1962).
Nolan, William John, Ph.D. (Michigan), Professor of Chemical Engineering (1946-1949).
Nolting, John Paul, M.S., Assistant Professor of Physical Sciences (1955-1956).
Norden, Allen James, Ph.D. (Iowa State), Associate Professor of Agronomy, IFAS 1955-1966).*
Nordlie, Frank Gerald, Ph.D. (Minnesota), Associate Professor of Zoology (1961-1966).
Nordstedt, Roger Arlo, Ph.D. (Ohio State), Assistant Professor (Asst. Agricultural Engineer), IFAS, (1969-1969).
Norman, Oscar Newton, B.S., Assistant Professor (Assistant Meteorologist), IFAS, USWB, Weather Forecasting Service (1941-1941).
Normann, Sigurd, J., Ph.D., M.D. (U. of Washington) Assistant Professor of Pathology (1968-1968).
Northrop, James Clement, M.A., Interim Teacher, P.K. Yonge Laboratory School (1969-1969).
Notes, Richard D., M.D. (George Washington University), Resident in Psychiatry (1968-1969).
Noyes, Ward D., M.D. (Rochester), Associate Professor of Medicine (1961-1965).
Nuernberger, Louis G., M.D. (Oklahoma), Assistant Professor in Psychiatry (1966-1966).
Nuetzel, William Andrew, M.S., Associate Professor of Professional Physical Education (1959-1969).
Nulton, Lucy, M.A., Instructor, P. K. Yonge Laboratory School (1950-1954).
Nunez, Theron Aldine, Jr., Ph.D. (University of California, Berkeley), Associate Professor of Anthropology and Assistant Dean of the Graduate School (1963-1969).
Nunnery, Michael Yates, Ed.D. (University of Tennessee), Professor of Education (1968-1968).

Nutter, Hazen Edward, M.A., Associate Professor of Education and Head, Education Library (1938-1950).
O'Bannon, John Horatio, Ph.D. (Arizona State), Assistant Nematologist, U. S. Dept. of Agriculture (1968-1968).
O'Brien, Thomas W., Ph.D. (Marquette), Assistant Professor of Biochemistry, Division of Biological Sciences (1967-1967).
Ochester, Edwin Frank, M.A., Interim Assistant Professor of English (1967-1967)
O'Connell, John Paul, Ph.D. (University of California), Associate Professor of Chemical Engineering (1966-1969).
O'Connell, Stephen C., J.D.; LL.D. (Jacksonville University); D.Ed. (Biscayne College); LL.D. (Notre Dame University), President (1967-1967).
O'Connell, Vincent Francis, Ph.D. (Adelphi), University Psychologist, Student Health Service, and Assistant Professor of Clinical Psychology and Psychiatry (courtesy) (1966-1967).
O'Connor, Joel L., Ph.D. (Texas), Assistant Professor of Mathematics (1967-1967).
O'Connor, John Arthur, M.A., Visiting Assistant Professor of Art (1969).
O'Donnell, John J., M.A., Interim Assistant Professor of Russian (1968-1968).
Ogburn, Benjamin R., M.D. (Virgina), Assistant Professor of Psychiatry (1967-1969).
Ogden, Marvin I., M.Ed., Assistant Professor of Journalism and Communications and Producer-Director, Television Station WUFT (1965-1968).
Ohanian, Mihran Jacob, Ph.D. (Rensselaer), Associate Professor of Nuclear Engineering Sciences and Chairman of the Department (1963-1969).
Ohlwiler, David, M.D. (Rochester), Clinical Associate in Surgery (1961-1961).
Öhrn, Nils Yngve, Ph.D. (Uppsala), Associate Professor of Chemistry and Physics (1966-1967).
O'Leary, James Patrick, M.D. (Florida) Resident in Surgery (1968-1968).
Oliver, Calvin Cleet, Ph.D. (Purdue), Professor of Mechanical Engineering (1967-1967).
Oliver, Clifton, Jr., M.A., Associate Professor of Management and Director of Management Center in College of Business Administration (1946-1959).
Olliff, Donathon Carnes, M.A., Interim Instructor in Social Sciences (1968-1968).
Olmstead, Patricia Palmer, M.A., Instructor of Education (1969-1969).
Olsen, Robert Winthrop, B.S., Professor (Biochemist), IFAS, Citrus Experiment Station (1947-1947).
Olson, Ellen Gertrude, M.Ed., Instructor of Education, (1967-1967).
Olson, Gerald Allen, D.V.M. (Auburn) Postdoctoral Fellow in Medicine (1968-1968).
Olson, Waldemar, Ed.D. (Texas), Professor of Education and Acting Chairman, Elementary Education Department (1957-1967).
Olsson, Carl Niels, M.S., Assistant Professor of Physical Sciences and Astronomy (1958-1963).*
O'Malley, John Richard, Ph.D. (Florida), Associate Professor of Electrical Engineering (1959-1964).
Omer, Guy Clifton, Jr., Ph.D. (California Institute of Technology), Professor of Physical Sciences, Physics and Astronomy and Chairman of Department of Physical Sciences (1955-1967).*
Openshaw, Harry O., M.D., (University of Pennsylvania), Intern in Medicine (1969-1969).
Opp, Carl Braden, B.A., Head, Off-Campus Housing (1940-1955).
Oppelt, W. Walter, M.D. (Harvard) Associate Professor of Phamacology and Medicine (1964-1968).
Oras, Ants, B. Litt. (Oxford), Professor of English (1949-1949).*
Ormond, William Newman, M.A., Associate Professor of English, Adviser (1948-1966).
Orsenigo, Joseph R., Ph.D., (Cornell), Professor (Plant Physiologist), IFAS, Everglades Experiment Station (1957-1967).
Orser, Frank William, M.S., Assistant to the Director of Libraries (1969-1969).
Ortabasi, Ugur, Ph.D. (University of Florida), Interim Assistant Professor of Nuclear Engineering Sciences (1969-1969).
Orth, Paul Gerhardt, Ph.D., (Wisconsin), Assistant Professor (Assistant Soils Chemist), IFAS, Sub-Tropical Experiment Station (1959-1959).
Osborn, George Coleman, Ph.D. (Indiana), Professor of Social Sciences (1947-1955).

Osborne, William J., M.Ed., Assistant Director, J. Wayne Reitz Union (1965-1965).
Osier, M. Susan, B.S. (University of Florida), Research Assistant in Medicine (1968-1968).
Osterbind, Carter Clarke, Ph.D. (American), Research Professor and Director of Bureau of Economic and Business Research (1950-1961).
Otis, Arthur B., Ph.D. (Brown), Professor of Physiology and Chairman of Department (1956-1956).*
Ott, Ray Lyman, Ph.D. (Virginia Polytechnic Institute), Assistant Professor of Statistics (1968-1968).
Overman, Allen Ray, Ph.D. (North Carolina State), Assistant Professor (Asst. Agricultural Engineer) IFAS, (1969-1969).
Overman, Amegda Jack, M.S., Associate Professor (Associate Nematologist), IFAS, Gulf Coast Experiment Station (1951-1968).
Overton, Robert W., Director of Food Service (1967-1967).
Ozaki, Henry Yoshio, Ph.D. (Cornell), Associate Horticulturist, Everglades Experiment Station (1954-1966).
Pace, James Edward, M.S.A., Animal Husbandman, Agricultural Extension Service (1942-1965).
Pachefsky, Reva Roberta, M.S., Assistant Librarian, Health Center Library (1968-1968).
Packer, Athol B., Ph.D. (Kansas), Assistant Professor of Education (1967-1967).
Pactor, Barbara Ann, M.S., Assistant Librarian, Circulation (1969-1969).
Pafford, Virgie Melton, M.P.H., Assistant Professor of Nursing (1959-1965).*
Paganini, Coramae, M.Ed. Instructor of Education (1964-1967).
Paganini, Louis Anthony, M.A., Interim Instructor of Geography (1968-1968).
Page, Ralph Emerson, Ph.D. (Syracuse), Assistant Dean of Academic Affairs and Professor of Political Science (1948-1968).
Page, Thomas L., M.A., Assistant Professor of Political Science (1966-1966).
Paige, Arnold, Ph.D. (University of California), Associate Professor of Speech and Electrical Engineering (1966-1966).
Palacio, Ricardo A., B.S., (Institute of Habana), Research Assistant in Pathology (1969-1969).
Palazzi, Deborah Lee, A.B., Interim Assistant in Research, College of Business Administration, (1969-1969).
Palmer, Arno Zane, Ph.D. (Missouri), Professor of Animal Science and Meat Scientist, Agricultural Experiment Stations (1955-1964).
Palmer, Richard Delray, Ed.S., Coordinator of Special Programs, Division of Continuing Education (1966-1966).
Paproski, Christina W., B.A. (Newark State College) Research Assistant in Pediatrics (1969-1969).
Parker, James C., B.S., Academic Professional II of Engineering and Research Associate in Psychiatry (1962-1967).
Parkinson, Michael Thaddeus, Ph.D. (Chicago), Assistant Professor of Physics (1969-1969).
Parr, Phillip L., M.D. (Vanderbilt) Resident in Surgery (1967-1967).
Parramore, Helen Martin, M.Ed., Interim Instructor of Education (1969-1969).
Parrish, James Bryan, B.S.B.A., Associate Director of Admissions (1963-1967).
Parsons, Philip, L.L.B. (Harvard), Instructor in Comprehensive Logic (1969-1969).
Partheniades, Emmanuel, Ph.D. (California), Professor of Coastal and Oceanographic Engineering (1968-1969).
Partridge, William L., M. A., Interim Instructor in Social Sciences (1969-1969).
Paschall, Homer A., M.D. (Bowman-Gray) Assistant Professor of Surgery (1967-1967).
Patray, JoAnn Howard, M.N., Assistant Professor, College of Nursing (1966-1968).
Patrowicz, Tully C., M.D. (University of Miami), Resident in Ophthalmology (1969-1969).
Patterson, Carol H., MN, Interim Assistant Professor, College of Nursing (1965-1969).*
Patterson, Elam Pusey, M.A.E., Assistant Professor of Mechanical Engineering (1952-1956).
Patterson, James P., B.S.J. (Ohio U), Director of Publications (1968-1968).

Patterson, Richard Lee, Ph.D. (University of Michigan), Professor of Industrial and Systems Engineering (1963-1967).
Patterson, Richard Sheldon, Ph.D. (Cornell), Assistant Professor of Entomology (1968-1968).
Patterson, Wilma L., Ph.D. (Michigan State), Counseling Psychologist, University Counseling Center (1966-1969).
Patton, Thomas H., Ph.D. (Texas), Assistant Curator, Florida State Museum and Assistant Professor, Zoology (1965-1965).
Paul, Garey Ethel, M.A., Interim Instructor in English (1965-1969).
Paul, Harry W., Ph.D. (Columbia), Associate Professor of History (1966-1966).
Pawliger, David F., M.D. (University of Florida), Clinical Fellow in Medicine (1967-1969).
Payne, Ancil Newton, Ph.D. (Illinois), Associate Professor of History (1929-1945).
Peacock, Fentress McCoughan, M.S., Associate Professor (Associate Animal Husbandman), IFAS, Range Cattle Experiment Station (1952-1963).
Pearlman, Eileen R., MN, Assistant Professor, College of Nursing (1966-1969).
Pearson, James L., M.S., Assistant Agricultural Economist, Agricultural Experiment Stations (1964-1964).
Peek, Ralph Leon, Ph.D. (Florida), Associate Professor of Social Sciences, Adviser (1963-1969).
Peeler, Ruth Beatrice, M.A., Instructor, P. K. Yonge Laboratory School (1934-1952).
Peeler, Thomas Harold, Ed.D., (Buffalo), Assistant Professor of Education (1969-1969).
Pennington, Clark William, C.E., Associate Professor of Mechanical Engineering (1954-1966).
Pennypacker, Henry Sutton, Ph.D. (Duke), Associate Professor and Acting Chairman, Department of Psychology (1962-1966).
Penrod, John Arthur, Ph.D. (Pennsylvania), Associate Professor of English (1950-1961).*
Pepinsky, Raymond, Ph.D. (Chicago), Visiting Professor of Metallurgical and Materials Engineering, and Physics (1968-1968).
Perdue, George Fred, M.S.E.E., Research Associate in Aerospace Engineering (1969-1969).
Perez, Fermin Luis, LL.D. (Havana), Assistant Law Librarian (1967-1968).
Perez, Guillermo J., M.D. (University of Paris), Clinical Assistant Professor in Pediatrics (1969-1969).
Perkins, Haven M., M.D. (Louisville), Assistant Professor in Anesthesiology (1959-1963).
Perkins, Margaret S., M.S., Research Associate in Physiology (1964-1965).
Perkins, Raymond Price, Ph.D. (Texas), Assistant Professor of Education (1966-1966).
Perlman, Herbert C., M.D. (Jefferson Medical School), Instructor in Radiology (1969-1969).
Perry, Franklin Stanton, M.Ag., Professor (Extension District Agent), IFAS, (1946-1949).
Perry, Joseph M., Ph.D. (Northwestern), Assistant Professor of Economics (1964-1964).
Perry, Nathan Warren, Ph.D. (Florida State), Associate Professor of Clinical Psychology (1963-1967).
Perry, Vernon G., Ph.D. (Wisconsin), Professor of Nematology and Nematologist, Agricultural Experiment Stations (1959-1959).
Person, Willis Bagley, Ph.D. (California), Professor of Chemistry (1966-1966).
Petersen, Gerald W., Ph.D. (Illinois), Assistant Professor of Spanish (1966-1966).
Peterson, Bruce, LL.M., (New York Univ.), Visiting Professor of Law (1969-1969).
Peterson, Jane Ellen, M.S.L.S., Assistant Librarian, Catalog (1969-1969).
Peterson, Larry Lee, M.Arch., Instructor of Architecture (1967-1967).
Peterson, Lennart Rudolph, Ph.D. (Massachusetts Institute of Technology), Assistant Professor of Physical Sciences and Physics (1967-1967).
Petruchyk, Jon A., M.F.A., Instructor of Art (1968-1968).
Petrus, Donald Richard, M.S., Research Associate, IFAS, FCC, Citrus Experiment Station (1968-1968).

Petryk, Sylvester, Ph.D. (Colorado State University), Assistant Professor of Civil Engineering (1969-1969).
Pettis, Aubrey Marshall, M.S.A., Associate Professor (Assoc. Agricultural Engineer) IFAS, (1947-1957).
Pfaff, William W., M.D. (Buffalo), Associate Professor of Surgery (1965-1969).
Pfahler, Paul Leighton, Ph.D. (Purdue), Associate Professor of Agronomy, IFAS (1958-1965).
Phalakornkul, Suriya, M.D. (Bangkok, Thailand) Fellow in Surgery (1967-1967).
Phelps, Dean G., Ph.D. (Washington U.), Assistant Professor of Mathematics (1968-1968).
Phillips, Curtis M., M.D. (Medical College of Georgia), Clinical Assistant Professor (1969-1969).
Phillips, Lyman A., Jr., M.D. (Miami) University Physician (1967).
Phillips, Richard Lee, Ph.D. (Michigan State), Assistant Professor (Assistant Horticulturist), IFAS, Citrus Experiment Station (1964-1964).
Philp, Elizabeth B., M.D. (Edinburgh University-Scotland) University Physician (1968).
Philp, James Ramsay, M.D. (Edinburgh U.) Visiting Assistant Professor in Medicine 1968-1968).
Picca, David, M.A., Assistant Librarian, Acquisitions (1967-1967).
Pickard, John Benedict, Ph.D. (Wisconsin), Professor of English (1963-1968).
Pickens, Norman E., M.D. (University of Chicago), Intern in Surgery (1969-1969).
Pickering, Michael J., M.D. (Florida) Fellow in Medicine and Microbiology (1961-1968).
Pickhardt, Robert Charles, D.B.A., (Indiana), Assistant Professor of Management (1964-1964).*
Pierce, Emory Lowe, Ph.D. (Florida), Professor of Zoology and Supervisor of Marine Laboratory Division of Biological Science (1945-1955).
Pierce, James Robert, J.D. (Florida), Assistant Professor of Law (1968-1968).
Pierce, Robert William, Jr., Ph.D. (Illinois), Assistant Professor of Geology (1969-1969).
Pierce, Zaida H., A.B. (Cornell), Research Assistant in Medicine (1959-1962).
Pieringer, Arthur Paul, Ph.D. (Cornell), Assistant Professor (Assistant Horticulturist), IFAS, Citrus Experiment Station (1956-1956).
Pierson, K. Kendall, M.D. (New York University) Associate Professor of Pathology (1968-1968).
Pike, David, H., M.S., Interim Research Associate, Industrial and Systems Engineering (1968-1968).
Pinkoson, Charles, M.D., Clinical Associate in Ophthalmology (1968-1968).
Piotrowski, George, Ph.D. (Case), Assistant Professor of Orthopedic Surgery; Assistant Professor of Mechanical Engineering (1969-1969).
Pirenian, Zareh Meguerditch, M.S., Associate Professor of Mathematics (1931-1937).
Pirkle, Earl C., Jr., Ph.D. (Cincinnati), Professor of Physical Sciences and Geology (1950-1969).*
Pleasants, Julian McIver, M.A., Interim Assistant Professor of Social Sciences (1969-1969).
Plunkett, Betty Kiser, Ph.D. (Illinois), Assistant Professor of Education (1967-1967).
Plutzky, Maximo, M.D. (Havana) Assistant Professor of Psychiatry (1968-1968).
Poe, Sidney Lamarr, M.S., Interim Assistant Professor (Interim Assistant Entomologist), IFAS, Gulf Coast Experiment Station (1969-1969).
Polack, Frank M., M.D. (San Marcos U., Peru) Associate Professor of Ophthalmology (1967-1967).
Pollock, Kenneth Charles, Ph.D. (Northwestern), Associate Professor of Communicative Disorders and Speech, (1964-1969).
Pollock, Margaret Bice, M.A., Interim Instructor of Speech (1969-1969).
Polopolus, Leonidas, Ph.D. (University of California, Berkeley), Professor (Agricultural Economist) and Assistant Dean Graduate School, IFAS and Graduate School (1965-1969).

Pomerance, William, M.D., Visiting Professor of Obstetrics and Gynecology (1970-1970).

Poole, Reid, M.A., Professor of Music and Chairman of Department of Music (1949-1962).

Poole, Richard Turk, Ph.D., (Florida), Assistant Professor (Assistant Plant Physiologist), IFAS, Ridge Ornamental Horticultural Laboratory (1961-1968).*

Popenoe, Hugh Llywelyn, Ph.D. (Florida), Director of International Programs in Agriculture; Director of Center for Tropical Agriculture; Associate Professor of Soils and Geography (1957-1966).

Pop-Stojanovic, Zoran Rista, Ph.D. (Belgrade), Associate Professor of Mathematics (1965-1968).

Porter, Alan Harry, M.S., Research Assistant in Radiology (1967-1967).

Portolani, Marinella, M.D. (University of Bologna), Research Assistant in Ophthalmology (1969-1969).

Post, Don McKenzie, M.S.F., Assistant Professor of Logging Practices and Assistant Forester, Agricultural Experiment Stations (1951-1955).

Potter, James M., M.D. (Florida) Resident in Pathology (1967-1967).

Potter, M. Nell, M.D., (Florida) University Physician (1967).

Potter, William Melville, M.A., Assistant Professor of Physical Education and Tennis Coach (1946-1946).

Poucher, Donald Walton, M.A., Assistant Communications Specialist, Agricultural Extension Service (1965-1965).

Powers, Leonard Stewart, J.D., (North Carolina), Professor of Law and Associate Dean (1957-1966).

Prasad, Sheo Shanker, Ph.D. (Queens University, Belfast), Associate Professor of Physics (1968-1968).

Prato, Anthony Alfred, Ph.D., (California), Assistant Professor (Assistant Agricultural Economist), IFAS (1969-1969).

Pratt, Theodore B., D.Sc., (Syracuse Univ.) Associate Professor (Specialist in Communications and Consumer Relations) IFAS, (1969-1970).

Preston, James F., Ph.D. (University of Minnesota), Assistant Professor (Assistant Bacteriologist), IFAS (1969-1969).

Preto-Rodas, Richard A., Ph.D. (Michigan), Assistant Professor of Portuguese and Spanish (1966-1966).

Previc, Edward Paul, Ph.D. (Illinois), Assistant Professor of Microbiology and Biological Sciences (1965-1970.)

Price, David P., M.D. (Louisville) Resident in Surgery (1968-1968).

Price, Donald Gruber, M.P.H., Assistant Radiation Control Officer (1962-1963).

Price, John Wilbur, Ph.D. (Michigan), Assistant Professor of Humanities, Adviser (1961-1965).

Price, Roland K., Ph.D. (Essex), Visiting Assistant Professor of Coastal and Oceanographic Engineering (1969-1969).

Price, William Hicks, M.A., Interim Assistant Professor of Social Sciences, Adviser (1966-1968).

Priem, Ervin Samuel, B.S.E.E., Assistant Professor of Electrical Engineering (1952-1952).

Primack, Robert B., M.Ed., Interim Assistant Professor of Education (1966-1966).

Primo, Fred Anthony, B.S., Research Associate in Nuclear Engineering (1963-1963).

Prince, Douglas Don, M.A., Instructor of Art (1968-1968).

Prine, Gordon Madison, Ph.D. (Ohio State), Associate Professor of Agronomy, IFAS (1958-1965).

Pritchett, William Lawrence, Ph.D. (Iowa State), Soils Technologist, Agricultural Experiment Stations (1948-1953).*

Probert, Walter, S.J.D. (Yale), Professor of Law (1959-1960).

Proctor, Charles Lafayette, Ph.D. (Oklahoma State University), Professor of Industrial and Systems Engineering (1966-1966).

Proctor, Samuel, Ph.D. (Florida), Professor of History and Social Sciences (1946-1963).

Provan, John, M.D. (State University of New York), Intern in Medicine (1969-1969).

Prugh, Byron Jonathan, B.S.C.E., Associate Professor of Building Construction (1963-1967).

Pruitt, Elihu P., III, M.D. (Alabama) Resident in Psychiatry (1968-1968).
Prystowsky, Harry, M.D. (Medical College of South Carolina), Professor and Chairman of Obstetrics and Gynecology (1959-1959).
Pullan, Veronica Agnes, M.A., Instructor, P. K. Yonge Laboratory School (1958-1962).
Purcell, James Eugene, Ph.D. (Case), Assistant Professor of Physics (1968-1968).
Purcifull, Dan Elwood, Ph.D. (California) Associate Professor (Associate Plant Pathologist) Institute of Food and Agricultural Sciences (1964-1969).
Purdy, Laurence Henry, Jr., Ph.D. (California), Professor and Chairman, Department of Plant Pathology, Institute of Food and Agricultural Sciences (1967-1967).
Purkey, William Watson, Sr., Ed.D. (Virginia), Associate Professor of Education (1964-1967).
Purpura, James Arthur, M.S.E., Associate Professor of Coastal and Oceanographic Engineering (1958-1964).
Purser, Mary May, M.F.A., Instructor of Education (1959-1960).
Purser, Stuart Robert, M.F.A., Professor of Art (1951-1951).*
Putnam, Hugh Dyer, Ph.D. (Minnesota), Associate Professor of Environmental Science (1963-1966).
Pyatt, Edwin Eugene, Dr.Eng. (Johns Hopkins), Professor of Environmental Engineering (1965-1965).
Pye, Ruby Lee, M.A., Assistant Professor of Physical Education (1949-1954).
Quarles, James C., LL.B., (Virginia), Professor of Law (1969-1969).
Quick, Donald Thomas, M.D. (Western Reserve) Clinical Associate Professor in Medicine (1964-1970).
Quinn, Carol Jean, M.S., Assistant Librarian, Reference and Bibliography (1968-1969).
Quintana, Rodrigo B., M.D. (University of Mexico), Instructor of Surgery (1967-1969).
Rabell, Rosa B., M.Ed., Teacher, P. K. Yonge Laboratory School (1966-1966).
Rackman, Robert Lamar, M.S., Research Associate, IFAS, Citrus Experiment Station (1969-1969).
Raese, John Thomas, Ph.D., (Maryland), Assistant Professor (Assistant Plant Pathologist), IFAS, USDA, Big Bend Horticultural Laboratory (1968-1968).
Ramey, Robert Ancel, Jr., D.Sc. (Cincinnati), Professor of Electrical Engineering (1966-1966).
Ramírez, Adolfo, Ph.D. (Wisconsin), Assistant Professor of Spanish (1948-1956).
Ramsay, Richard E., M.D. (University of Florida), Intern in Surgery (1969-1969).
Ramsey, Howard W., M.D. (Florida) Assistant Professor in Medicine (1961-1968).
Randall, J. Malcom, M.H.A., Associate Professor of Health and Hospital Administration, V.A.[1], (1969-1969).
Randazzo, Anthony Frank, Ph.D. (North Carolina), Assistant Professor of Geology (1967-1967).
Rao, Koppaka V., Ph.D. (University of Wisconsin), Professor of Pharmaceutical Chemistry, College of Pharmacy, (1969-1969).
Rao, Pejaver Vishwamber, Ph.D. (University of Georgia), Associate Professor of Statistics, Agricultural Experiment Station (1965-1965).
Rapp, Galina Goldammer, Lic. en Droit, Líc. es Léttrès, Assistant Professor of Russian (1959-1959).
Rappenecker, Caspar, Ph.D. (Cornell), Professor of Geology and Arts and Sciences Coordinator of Continuing Education (1949-1966).
Rathbun, Frank F., B.A.J., Interim Instructor in Journalism and Communications (1968-1968).
Ratliff, Hugh Donald, Ph.D. (Johns Hopkins), Assistant Professor of Industrial and Systems Engineering (1970-1970).
Raulston, James Chester, Ph.D. (Maryland), Assistant Professor (Assistant Ornamental Horticulturist), IFAS, Gulf Coast Experiment Station (1969-1969).
Ray, Delmas Dennis, Ph.D. (Florida), Professor of Accounting (1948-1962).
Ray, Jerry Clyde, M.A., Interim Instructor of Speech (1968-1968).
Ray, Jordan Boon, Jr., J.D. (Florida) Associate Professor of Business Law (1962-1968).
Ray, Walter F., M.D. (Florida) Resident in Medicine (1967-1967).
Rayl, John E., M.D. (Louisville), Clinical Associate Professor of Surgery (1962-1969.)

Raymond, Walter, B.Arch., Professor of Architecture (1956-1958).*
Reagan, Michael Gregory, B.E.E., Research Associate, Physics (1968-1968).
Reaves, Clarence William, M.S.A., Extension Dairyman, Agricultural Extension Service (1947-1947).
Reber, Stanley R., A.M., Interim Assistant Professor of Economics (1969-1969).
Reddish, Robert Lee, Ph.D. (Texas A. & M.), Associate Meats Specialist, Agricultural Extension Service (1955-1957).
Reed, John Clifford, M.E., Professor of Mechanical Engineering; Assistant Dean, College of Engineering (1950-1965).
Reed, Larry Wood, B.A., Interim Teacher, P.K. Yonge Laboratory School (1969-1969).
Reed, Thomas McKennan, Ph.D. (Pennsylvania State), Professor of Chemical Engineering (1952-1965).
Reed, X. B., Jr., Ph.D. (Minnesota), Assistant Professor of Chemical Engineering (1966-1966).
Reed-Hill, Robert Ellis, D.Sc. (Yale), Professor of Metallurgical and Materials Engineering (1960-1964).*
Reese, Edwin Charles, M.P.H., Instructor of Physical Education (1966-1967).
Reese, Robert Lewis, Ph.D., (Florida), Assistant Professor (Assistant Horticulturist), IFAS, Citrus Experiment Station (1963-1966).
Reeves, Frank Blair, M.A.Arch., Professor of Architecture (1949-1968).
Regna, Joseph Louis, M.A., Assistant Professor of Physical Education (1961-1965).
Reichard, Cary Layne, Ed.D. (Colorado State), Assistant Professor of Education (1969-1969).
Reid, Charles Edward, Ph.D. (Louisiana State), Associate Professor of Chemistry (1948-1955).
Reid, William R., Ph.D. (Iowa State), Professor of Education and Chairman, Special Education Department (1969-1969).
Reinstine, Harry W. Jr., M.D. (Virginia), Clinical Associate Professor of Surgery (1968-1969).
Reiskind, Jonathan, Ph.D. (Harvard), Assistant Professor of Biological Sciences and Zoology, Adviser (1967-1968).
Reitz, Herman J., Ph.D., (Ohio State), Professor (Horticulturist) and Head, IFAS, Citrus Experiment Station (1946-1957).
Remark, Fred, M.D., (Ohio State), Clinical Fellow in Surgery (1969-1969).
Remillet, June Gordon, M.P.H., Associate Professor of Nursing (1959-1965).
Renick, John Terry, M.D. (Emory) Resident in Psychiatry (1968-1968).
Renn, Wade H., M.D. (University of Florida), Intern in Surgery (1969-1969).
Renner, Richard Roy, Ph.D. (Texas), Associate Professor of Education (1965-1965).
Rennert, Owen M., M.D. (Chicago), Assistant Professor of Biochemistry and Associate Professor of Pediatrics (1968-1969).
Reynolds, John Everett, Ph.D. (Iowa State), Assistant Agricultural Economist, Agricultural Experiment Stations (1966-1966).
Reynolds, Mable Marie, M.A., Assistant Librarian, Catalog (1949-1955).
Reynolds, Richard Clyde, M.D. (Johns Hopkins) Associate Professor of Medicine (1968-1968).
Rhatigan, Ronald M., M.D. (University of Iowa), Clinical Assistant Professor of Pathology (1969-1969).
Rhines, Frederick Nims, Ph.D. (Yale), Professor of Metallurgical and Materials Engineering and Chairman of the Department (1959-1960).
Rhoades, Harlan L., Ph.D., (Illinois), Associate Professor (Associate Nematologist), IFAS, Central Florida Experiment Station (1959-1967).
Rhoads, Frederick Milton, Ph.D., (Mississippi State), Assistant Professor, (Assistant Soils Chemist), IFAS, North Florida Experiment Station (1966-1966).
Ricci, Leonardo, Ph.D., (Univ. of Florence), Graduate Research Professor of Architecture (1969-1969).
Rice, Robert J., M.A., Assistant Professor of Journalism and Communications (1966-1966).
Rice, Warren John, Ph.D. (Western Reserve), Assistant Professor of Clinical Psychology, V.A.[1], (1969-1969).

Richard, George A., M.D. (Pittsburgh) Assistant Professor in Pediatrics (1967-1968).
Richard, Wayne, Ph.D. (Peabody), Assistant Professor of Education (1968-1968).
Richardson, James Gilbert, M.A., Associate Professor of Finance (1946-1957).*
Richardson, Woodrow Wilson, B.Ch.E., Research Associate, Astronomy (1968-1968).
Ridge, Margaret Burns, M.L.S., Assistant Librarian, Acquisitions (1969-1969).
Riederer, LaHoma L., M.B.A., Interim Instructor and Manager of Computer Laboratory in College of Business Administration (1967-1968).
Riegel Byron W., M.D. (Cornell) Resident in Ophthalmology (1968-1968).
Rife, David Cecil, Ph.D. (Ohio State), Interim Associate Professor, Division of Biological Sciences (1966-1968).
Riggs, Frank P., J.D. (Florida) Associate Professor of Law (1969-1969).
Riherd, Martha, B.A., Interim Teacher, P. K. Yonge Laboratory School (1968-1968).
Riker, Harold Clark, Ed.D. (Columbia), Professor of Education and Director of Housing (1938-1966).*
Riley, Joseph L., M.D. (Loma Linda), Resident in Anesthesiology (1969-1969).
Ring, Alfred A., Ph.D. (New York), Professor of Real Estate and Chairman of Department of Real Estate and Urban Land Studies (1947-1960).
Ring, Wade, M.Ed., Instructor, P. K. Yonge Laboratory School (1958-1962).
Rion, William E., M.A., Director of J. Wayne Reitz Union (1945-1948).*
Rippy, Wilson C., Jr., M.D. (Emory University), Clinical Associate in Psychiatry (1964-1964).
Rising, Clara Lucille, Ph.D. (Florida), Assistant Professor of Humanities (1965-1969).*
Roan, Vernon Parker, Ph.D. (Illinois), Associate Professor of Mechanical Engineering (1966-1966).
Robbins, Charles Lewis, M.S., Instructor in Sociology (1956-1960).
Robbins, James E., M.D. (Emory) Clinical Associate in Ophthalmology (1962-1962).
Robbins, Marilyn J., B.S. (Iowa State College), Research Assistant in Psychiatry (1969-1969).
Robbins, Ralph Compton, Ph.D. (Illinois), Associate Professor (Associate Nutritionist), IFAS (1959-1966).
Robbins, Sharyn Heiland, M.A., Assistant Professor of Physical Education, (1969-1969).
Roberts, Daniel Altman, Ph.D. (Cornell), Professor (Plant Pathologist) Institute of Food and Agricultural Sciences (1959-1964).
Roberts, Dayton Young, Ph.D. (Florida State University), Interim Associate Professor of Education (1968-1968).
Roberts, Donald Ray, Ph.D. (Auburn), Research Associate (Courtesy), IFAS, (1969-1969).
Roberts, Eleanor F., M.F.A., Public Functions Manager, J. Wayne Reitz Union (1965-1965).
Roberts, Eliot C., Ph.D. (Rutgers), Professor and Chairman, Department of Ornamental Horticulture, Institute of Food and Agricultural Sciences (1967-1967).
Roberts, Henry Lamar, M.D. (Duke), Ph.D. (McGill), Professor of Surgery and Chief of the Division of Neurosurgery (1958-1961).
Roberts, Leonidas Howard, Ph.D. (Florida), Associate Professor of Physical Sciences and Astronomy; Adviser (1949-1961).*
Roberts, Michael, D.Phil. (Lincoln College), Assistant Professor of Biochemistry (1970-1970).
Roberts, Paul Edward, Jr., Ph.D., (University of Iowa), Assistant Professor of Economics (1969-1969).
Roberts, Stephen D., Ph.D. (Purdue), Assistant Professor of Industrial and Systems Engineering (1968-1968).
Robertson, Douglas R., Ph.D. (State University of New York) Assistant Professor of Anatomical Sciences (1950-1965).
Robertson, Judith A., M.D. (University of Florida), Intern in Pediatrics (1969-1969).
Robertson, Mary Frances, M.A., Academic Professional II, Psychiatry (1966-1967).
Robertson, William Kitchener, Ph.D. (Purdue), Soils Chemist, Agricultural Experiment Stations (1950-1965).

Robinson, Christine Barbara, M.A., Interim Assistant Professor of French, (1969-1969).
Robinson, Frank Albert, M.S., Associate Agriculturist, Agricultural Experiment Stations (1950-1966).
Robinson, Jack Richard, B.A., Assistant Director of Personnel (1965-1969).
Robinson, Joseph Al, B.S., Interim Teacher, P.K. Yonge Laboratory School (1969-1969).
Robinson, William Ronald, Ph.D. (Ohio State University), Associate Professor of English (1967-1967).
Robinton, Walter Haskett, M.Ed., Interim Instructor in Social Sciences (1967-1967).
Rochford, John Patrick, B.A., Interim Assistant Librarian, Special Collections (1969-1969).
Rodeheaver, Janet Little, M.Ed., Assistant Professor of Medical Technology (1961-1967).
Rodgers, Earl Gilbert, Ph.D. (Iowa State), Professor of Agronomy, IFAS (1946-1959).
Rodriguez, Juan E., M.D. (Madrid, Spain) Resident in Psychiatry (1967-1967).
Rodriguez, Rene Sergio, Jr., Ph.D. (Tennessee), Assistant Professor of Mathematics (1968-1968).
Roesch, Charles B., M.D. (Cornell), Clinical Assistant Professor in Surgery JHEP—(1969-1969).
Roessler, Charles E., Ph.D. (University of Florida), Assistant Professor of Radiation Biophysics (1967-1967).
Rogers, Clarence J., M.Ag., Associate Professor (Assoc. Agricultural Engineer) IFAS, (1953-1967).
Rogers, James Samuel, Ph.D. (University of Illinois), Agricultural Engineer, USDA, IFAS (1968-1968).
Rolf, Lester J., Jr., Ph.D. (Texas A&M), Postdoctoral Fellow in Pharmacology (1969-1969).
Rooks, Evelyn Ann, M.H.E., Assistant Professor (Extension Human Development Specialist), IFAS (1969-1969).
Roosenraad, Jon A., M.A., Interim Instructor in Journalism and Communications (1968-1968).
Ropicki, James Steven, B.A., Computer Operations Manager I (1966-1966).
Roscelli, William John, Ph.D. (Ohio State), Associate Professor of English (1966-1968).
Rose, Gillis Norman, B.S., Associate Agricultural Economist, Agricultural Experiment Stations (1943-1945).
Rosen, Ira G., Ph.D. (Polytechnic Institute of Brooklyn), Assistant Professor of Microbiology (1967-1967).
Rosen, Laura Moss, M.A., Interim Instructor of French (1968-1968).
Rosenbaum, Walter A., Ph.D. (Princeton), Assistant Professor of Political Science (1962-1963).
Rosenberger, Stanley Eugene, Ph.D. (Florida), Marketing Specialist in Vegetable Crops, Agricultural Extension Service (1947-1965).*
Rosenbloom, Arlan L., M.D. (Wisconsin), Assistant Professor of Pediatrics and Assistant Director of Clinical Research Center (1968-1968).
Rosenshein, Joseph Stanley, Ph.D. (Massachusetts Institute of Technology), Assistant Professor of Physics (1966-1966).
Rosier, Nelson Eugene, M.S.E., Associate Professor of Electrical Engineering (1955-1966).
Ross, Claudius Allen, M.S.A.E., Teaching Associate in Aerospace Engineering (1958-1964).
Ross, Ernest, Ph.D., (Ohio State), Visiting Professor, Poultry Science, IFAS, (1969-1969).
Ross, John U., M.D. (Howard), Associate Professor of Pediatrics, (1965-1969).
Rothwell, Donald Frederick, Ph.D. (Purdue), Associate Professor of Soils and Associate Soils Microbiologist, Agricultural Experiment Stations (1948-1958).
Rouse, Alvin Hamilton, M.S., Professor (Chemist), IFAS, Citrus Experiment Station (1949-1958).
Row, Andrew William, M.A., Instructor in Mathematics (1958-1958).
Rowe, Bobby Louise, M.A., Interim Instructor of Education (1969-1969).

Rowe, Charles E., M.D. (University of Virginia), Resident in Surgery (1969-1969).
Roy, JoAnn Ruth, B.A., Interim Teacher, P.K. Yonge Laboratory School, (1969-1969).
Roye, David B., M.S., Interim Instructor in Biological Sciences (1969-1969).
Rubin, Melvin L., M.D. (California), Professor of Ophthalmology (1963-1967).
Rubrecht, August Weston, B.A., Interim Instructor of English and Speech (1969-1969).
Ruelke, Otto Charles, Ph.D. (Wisconsin), Professor of Agronomy, IFAS (1955-1969).
Ruffin, William Cain, Jr., M.D. (North Carolina) Professor of Psychiatry (1959-1968).
Ruggles, Dwayne L., M.D. (Missouri) Resident in Surgery (1968-1968).
Rummel, Raymond Alfred, B.S., Assistant Professor of Metallurgical and Materials Engineering (1959-1967).
Rushton, Francis Edwards, M.D. (Virginia) Clinical Associate in Pediatrics (1966-1966).
Russell, Larry Wilbur, M.S.E., Senior Research Assistant in Engineering in Environmental Engineering (1968-1968).
Rutan, Fred Murray, M.S., Associate Professor of Physical Therapy (1961-1968).
Ryan, Mary Patricia, M.A., Assistant Professor of Physical Education (1969-1969).
Ryschkewitsch, George Eugene, Ph.D. (Ohio State), Professor of Chemistry (1956-1965).
Sabatella, Joseph J., M.F.A., Assistant Dean of the College of Architecture and Fine Arts and Associate Professor of Architecture (1959-1967).
Sachrison, Kathryn L., MN, Instructor, College of Nursing (1969-1969).
Saciuk, Bohdan, Ph.D. (Illinois), Assistant Professor of Spanish and Portuguese (1969-1969).
Sadler, Frank Orin, M.Ed., Interim Instructor in English (1966-1969).
Sadler, Samuel Gould, Ed.D. (Florida), Associate Professor of Mathematics (1954-1954).
Saffos, Rosilie S., M.D. (University of Florida), Resident in Pathology (1968-1968).*
Sah, Chih-Tang, Ph.D. (Illinois), Lecturer of Electrical Engineering (1966-1966).
Sajovic, James W., M.F.A., Instructor of Architecture (1966-1967).
Salmon, Richard George, Ed.D., (Florida) Interim Assistant Professor of Education (1969-1969).
Samuel, John Alton, M.S.E., Associate Professor of Mechanical Engineering (1954-1967).
Sand, Walter I., Ph.D. (Maryland), Assistant Professor of Clinical Psychology, V.A.[1], (1968-1968).
Sandefur, Wayne Thomas, H.S.D. (Indiana), Professor, Professional Physical Education; Chairman of Department of Professional Curriculum (1953-1963).
Sander, Eugene George, Ph.D. (Cornell), Assistant Professor of Biochemistry (1967-1967).
Sanders, Sandy K., M.D. (Florida) Clinical Associate in Pediatrics (1965-1968).
Sanders, W. Eugene, M.D. (Cornell), Assistant Professor of Medicine and Microbiology (1964-1965).
Sanders, Willie, Assistant in Anatomical Sciences (1967-1967).
Sanderson, John Allen, M.U.P., Interim Assistant Professor of Architecture (1969-1969).
Saporito, Charles, M.D. (L.S.U.), Trainee, Resident and Assistant in Psychiatry (1966-1966).
Sashoff, Stephen Pencheff, M.S., Professor of Electrical Engineering (1932-1946).
Satterwhite, James P., M.D. (Bowman Gray), University Physician (1968-1968).
Satz, Paul, Ph.D. (Kentucky), Associate Professor of Clinical Psychology (1964-1967).
Saunders, John Van Dyke, Ph.D. (University of Florida), Professor of Sociology (1961-1967).*
Saunders, Julia Vissotto, M.A., Interim Assistant Librarian, Catalog, (1969-1969).
Savory, John, Ph.D. (U. Durham, England), Assistant Professor in Pathology (1965-1967).
Saw, John Greenville, Ph.D. (University of London), Professor of Statistics (1965-1969).

Sawyer, Earl Morrow, Ph.D. (Florida), Associate Professor of Physics (1947-1968).
Sawyer, Herbert A., Jr., M.E., C.E., Professor of Civil Engineering (1962-1962).
Saxena, Gopal Krisna, Ph.D. (Florida), Post-Doctoral Fellow, Agricultural Experiment Station (1968-1968).
Saxon, Stephen Appollos, Ph.D. (Florida State University) Assistant Professor of Mathematics (1969-1969).
Scarborough, Linda Ann, B.S., Interim Teacher, P.K. Yonge Laboratory School (1969-1969).
Schafer, Michael Irwin, Ed.D., (Florida), Interim Assistant Professor of Education (1969-1969).
Schafer, Walter L., M.D. (Ohio State), Clinical Instructor of Pediatrics (1969-1969).
Schank, Stanley Cox, Ph.D. (California), Associate Professor of Agronomy, IFAS (1961-1966).
Scharnweber, Ronald Lee, M.A., Counselor, Division of Housing (1969-1969).
Schaub, James Hamilton, Ph.D. (Purdue University), Professor of Civil Engineering and Chairman of the Department (1969-1969).
Scheaffer, Richard Lewis, Ph.D. (Florida State University), Assistant Professor of Statistics (1967-1967).
Scheffer, George, B.A., Instructor of Architecture (1969-1969).
Schenck, Norman Carl, Ph.D. (Illinois) Professor (Plant Pathologist) Institue of Food and Agricultural Sciences (1956-1968).
Schettini, Alfonso, M.D. (University of Naples), Assistant Professor of Anesthesiology (1968-1969).
Schiebler, Gerold Ludwig, M.D. (Harvard Medical School), Professor and Chairman of Pediatrics (1960-1966).
Schieneman, Bruce O., M.D. (Ohio State), Resident in Medicine (1968-1969).
Schiffli, Richard J., B.S.B.A., Assistant to the Vice President for Administrative Affairs (1966-1970).
Schimpff, Robert D., M.D. (Florida) Resident in Medicine (1967-1967).
Schlein, Edward M., M.D. (University of Florida), Fellow in Medicine (1969-1969).
Schmertmann, John Henry, Ph.D. (Northwestern), Professor of Civil Engineering (1956-1965).*
Schmid, Gerhard Martin, Ph.D. (Innsbruck), Assistant Professor of Chemistry (1964-1964).
Schmidt, Marlin, Ph.D. (University of Iowa), Assistant Professor of Education (1968-1968).
Schmidt, Peter Allen, M.A., Research Assistant in Nuclear Engineering Sciences (1968-1968).
Schmidt, Richard P., M.D. (Louisville) Associate Dean, College of Medicine; Professor of Medicine (1958-1967).
Schmidt, Robert Allen, Ph.D. (Pennsylvania State) Assistant Professor (Assistant Forester) Institute of Food and Agricultural Sciences (1967-1967).
Schnare, Paul S., Ph.D. (Tulane), Assistant Professor of Mathematics (1967-1967).
Schneider, Eva Maria, M.A., Visiting Instructor of German (1968-1968).
Schneider, Nathan J., Ph.D. (Pittsburgh), Assistant Professor of Bacteriology (1954-1954).
Schneider, Richard Theodor, Dr. rer.nat. (Technical University Stuttgart, Germany), Professor of Nuclear Engineeing Sciences (1965-1968).
Schneider, Valerie Lois, Ph.D. (Florida), Interim Assistant Professor of Speech (1969-1969).
Schnelle, Kurt Hans, M.D. (University of Munich), Visiting Research Associate College of Pharmacy (1969-1969).
Schoenau, Ronald Helmuth, B.S., Data Processing Director (1962-1969).
Schoessow, Glen John, M.S.M.E., Professor of Nuclear Engineering (1958-1958).
Scholes, Robert James, Ph.D. (Indiana), Assistant Research Professor of Speech (1966-1966).
Schrader, Hans William, M.S., Assistant Research Physicist (1945-1966).
Schroder, Vincent Nils, Ph.D. (Duke), Associate Professor of Agronomy, IFAS (1955-1969).

Schulkind, Martin Lewis, M.D. (Chicago) Assistant Professor of Pediatrics (1965-1968).
Schumacher, Audrey Sims, Ph.D. (Western Reserve), Professor of Psychology (1958-1958).
Schumacher, Henry C., M.D. (Johns Hopkins) Clinical Associate in Psychiatry (1966-1966).
Schwab, John J., M.D. (Louisville), Professor of Psychiatry (1959-1967).
Schwartz, Frank Leroy, Ph.D. (Michigan), Professor of Mechanical Engineering (1962-1962).
Schwartz, Herbert Tobias, LL.M. (Illinois), Interim Assistant Professor of Social Sciences (1968-1968).
Schwartz, Michael R., M.H.A., Associate Director, Shands Teaching Hospital and Clinics; Assistant Professor of Health and Hospital Administration, (1966-1968).
Schwarz, George C., M.D. (Duke), Associate Professor of Pediatrics and Assistant Professor of Psychiatry (1969-1969).
Schwenke, Roger D., J.D. (Florida), Interim Instructor of Law (1969-1969).
Schweyer, Herbert English, Ph.D. (Columbia), Professor of Chemical Engineering (1946-1950).
Sciadini, Frank, M.A., Assistant Professor of Comprehensive Logic, Adviser (1960-1965).
Scott, Anna Deane, M.Ed., Assistant Professor of Occupational Therapy (1967-1967).
Scott, David F. Jr., M.B.A., Interim Instructor of Finance (1968-1968).
Scott, Katherine Nasfay, Ph.D. (Florida) Research Associate in Radiology (1968-1968).
Scott, Malcolm Fraser, B.A., Assistant Director of Admissions (1962-1962).
Scott, Thomas A., Ph.D. (Harvard), Professor of Physics (1958-1966).
Scott, Thomas E., Jr., M.D. (Tennessee), Visiting Lecturer in Neuroanatomy (1958-1958).
Scott, Thomas McDonald, M.A.E., Assistant Professor of Physical Education (1949-1952).
Scrafford, Ralph A., Ed.D. (Pennsylvania State), Associate Professor of Education (1957-1957).*
Scroggie, Ann McKissick, M.S., Interim Instructor of Education (1967-1968).
Scroggie, Everett, Jr., M.A., Assistant Professor of Communicative Disorders (1966-1968).
Scruggs, William Martin, Jr., M.Ed., Coordinator of Special Programs, Division of Continuing Education (1968-1968).
Scudder, Delton Lewis, Ph.D. (Yale), Professor of Religion and Chairman of Department (1946-1946).
Scudder, Walter Tredwell, Ph.D., (Cornell), Professor (Horticulturist), IFAS, Central Florida Experiment Station (1955-1968).
Seaberg, Lillian Marie, M.A., Assistant Librarian, Reference and Bibliography (1949-1955).
Seay, Mary E., M.D. (University of Florida), Resident in Pediatrics (1968-1969).
Segedy, Harry J., B.A., Assistant Curator, Florida State Museum (1965-1965).
Seito, Takashi, M.D., (Okayama University), Visiting Research Associate in General Surgery (1970-1970).
Self, Morris Waldt, Ph.D. (Minnesota), Professor of Civil Engineering (1966-1966).
Selfridge, Ralph G., Ph.D. (Oregon), Professor of Mathematics and Director of the Computing Center (1961-1966).
Sellin, David L., Ph.D. (Duke) Interim Instructor in Physical Sciences (1969-1969).
Senterfitt, Vernon, M.S., Assistant in Microbiology (1968-1968).
Sewell, Jerry H., B.S., (University of Georgia), Research Assistant in Ophthalmology (1969-1969).
Seymour, Carter Purnell, M.S., Associate Plant Pathologist, Div. of Plant Industry (1968-1968).
Shaara, Richard Benson, M.D. (University of Texas), University Physician (1969-1969).
Shackton, Mary, B.S.N., Research Assistant, College of Nursing, (1967-1967).
Shaffer, Charles Vernon, Ph.D. (Stanford), Professor of Electrical Engineering and Assistant Dean of the Graduate School (1946-1969).

Shagory, George E., M.B.A. (Whorton School of Finance), Graduate Research Associate, Academic Affairs, (1969-1969).
Shands, Joseph W., Jr., M.D. (Duke) Associate Professor of Microbiology and Medicine (1961-1968).
Shanor, Leland, Ph.D. (North Carolina), D.Sc. (Illinois Wesleyan), Professor and Chairman, Department of Botany, Institute of Food and Agricultural Sciences (1965-1965).
Shapiro, Stanley T., M.D. (Georgia), Resident in Surgery (1967-1967).
Sharer, Leroy R., M.D. (Cornell), Intern in Medicine (1969-1969).
Sharp, Bert Lavon, Ed.D. (Florida), Dean, College of Education, and Professor of Education (1956-1968).*
Sharpe, Miles Hervey, Ph.D. (Pennsylvania State), Editor and Chairman of Editorial Department, Institute of Food and Agricultural Sciences (1955-1961).
Sharpe, Ralph Harold, M.S., Professor (Horticulturist) IFAS, (1948-1960).
Shaw, Lawrance Neil, Ph.D. (Ohio State), Assistant Professor (Asst. Agricultural Engineer) IFAS, (1969-1969).
Shaw, Leland George, M.Arch., Assistant Professor of Architecture (1964-1967).
Shaw, Lynn F., Ph.D. (Cambridge University), Assistant Professor of Pathology (1968-1969).
Shaw, Marvin Evert, Ph.D. (Wisconsin), Professor of Psychology (1959-1962).
Shaw, Suzanne Jane, M.A., Assistant Librarian, Catalog (1967-1967).
Shea, Joseph James, Ph.D. (Michigan), Assistant Professor of Education (1967-1967).
Sheckles, Mary Elmyra, Ed.D. (Columbia), Associate Professor of Education (1958-1964).
Sheehan, Thomas John, Ph.D. (Cornell), Professor (Ornamental Horticulturist), IFAS (1954-1967).
Shemdin, Omar H., Ph.D. (Stanford), Associate Professor of Coastal and Oceanographic Engineering (1967-1969).
Shenkman, Frederick Alan, M.Ed., Interim Instructor in Social Sciences (1969-1969).
Sheppard, Donald Max, Ph.D. (Arizona State), Assistant Professor of Engineering Science and Mechanics (1968-1968).
Sherman, Robert Raymond, Ed.D. (Rutgers), Assistant Professor of Education (1967-1967).
Sherman, Wayne Bush, Ph.D. (Purdue) Asst. Professor (Asst. Horticulturist) IFAS, (1966-1966).
Sherouse, Ray Truman, Assistant Professor (Assistant Meteorologist), IFAS, USWB, Weather Forecasting Service (1935-1935).*
Sherrard, Maurice G., B.P.A., Medical Art-Illustrator (1966-1967).
Sherrard, Robert G., B.S., Civil Defense Coordinator (1962-1962).
Shevach, Allen B., M.D. (State University of New York), Resident in Obstetrics and Gynecology (1969-1969).
Shields, Dorothy Ann, M.Ed., Assistant Professor of Physical Education (1962-1962).
Shields, James Charles, M.A., Research Assistant in Psychiatry (1967-1967).
Shields, Murray William, Ph.D. (Washington), Professor of Economics (1946-1949).
Shipp, Joseph Calvin, M.D. (Columbia) Professor of Medicine and Director of Clinical Research Center (1960-1968).
Shippen, E. Rodman, M.D. (Hahnemann Medical College), Clinical Associate in Psychiatry (1962-1962).
Shirley, Ray Louis, Ph.D. (Michigan State), Professor of Animal Science and Animal Nutritionist, Agricultural Experiment Stations (1949-1949).*
Shoemaker, Madelyn Owen, B.S., Interim Teacher, P. K. Yonge Laboratory School (1966-1966).
Shoemyen, Margaret Clare, M.A., Instructor of Occupational Therapy; Chief Occupational Therapist, (1964-1966).
Shofi, John D., J.D. (Florida), Assistant Law Librarian (1969-1969).
Sholtes, Robert Stephen, Ph.D. (Florida), Associate Professor of Environmental Engineering (1964-1964).
Showalter, Robert Kenneth, M.S., Professor of Food Science and Horticulturist, Institute of Food and Agricultural Sciences (1945-1956).
Shrestha, Gambhir Man, Ph.D. (Liverpool), Visiting Assistant Professor of Mathematics (1969-1969).
Shuler, Audie Irwin, B.A., Director of Security Services (1962-1962).

Shulman, Leila R., M.A., Academic Professional I, Psychiatry (1968-1968).
Shumaker, James R., Ph.D., (Minnesota), Assistant Professor (Assistant Horticulturist), IFAS, Potato Investigations Laboratory (1967-1967).
Shuster, Jonathan Jacob, Ph.D. (McGill University), Assistant Professor of Statistics (1969-1969).
Sieg, Peter K., B.S., Assistant Editor, Health Center Relations (1965-1965).
Siegel, Betty Lentz, Ph.D. (Florida State University), Assistant Professor of Education, (1967-1968).
Siegel, Joel Herbert, M.A., Assistant Professor in English (1967-1969).
Sieka, Frank L., Ph.D. (State U. of New York), Assistant Professor of Rehabilitation Counseling, (1969-1969).
Sierakowski, Robert L., Dr. Eng. (Yale), Associate Professor of Engineering Science and Mechanics (1967-1968).
Sigmon, Kermit N., Ph.D. (Florida), Assistant Professor of Mathematics (1966-1966).
Silk, Ernest Samuel, M.S., Assistant Professor of Physical Sciences; Adviser (1957-1957).*
Silverman, Irwin, Ph.D. (University of Rochester), Associate Professor of Psychology (1968-1968).
Simanton, William Aldrich, Ph.D., (Iowa State), Professor (Entomologist), Citrus Experiment Station (1950-1950).
Simmons, Lynda L., M.Ed., (Florida), Interim Teacher, P. K. Yonge Laboratory School (1968-1968).
Simmons, Robert E., Ph.D. (Minnesota), Associate Professor of Journalism and Communications (1969-1969).
Simons, Fred Oliver, Jr., Ph.D. (University of Florida), Associate Professor of Electrical Engineering, GENESYS—Orlando (1965-1969).
Simpson, Charles Floyd, D.V.M. (Cornell), Ph.D. (Minnesota), Professor of Veterinary Science (Pathologist), Institute of Food and Agricultural Sciences (1948-1957).
Sims, George Rudd, M.B.A., Assistant Professor of Marketing and Assistant Dean, College of Business Administration (1957-1964).
Singleton, George T., M.D. (Baylor) Professor of Surgery and Chief of the Division of Otolaryngology (1961-1968).
Singley, John Edward, Ph.D. (Florida), Associate Professor of Water Chemistry, Department of Environmental Engineering (1967-1967).
Sisler, Harry Hall, Ph.D. (Illinois), Executive Vice President and Professor of Chemistry (1956-1970).
Sisson, N. Mack, M.S., Assistant Professor of Pharmacy (Courtesy), (1969-1969).
Sites, John Wilbur, Ph.D., (Ohio State), Professor (Horticulturist) and Dean for Research, IFAS, (1942-1967).
Sivazlian, Boghos D., Ph.D. (Case Institute of Technology), Associate Professor of Industrial and Systems Engineering (1966-1968).
Skelley, Robert Charles, M.A., Assistant Professor in Art (1962-1967).
Skinner, Richard G., Jr., M.D. (Emory) Clinical Associate Professor (JHEP) in Pediatrics (1968-1968).
Skinner, Thomas Cobb, M.Ag., Professor (Agricultural Engineer) IFAS, (1947-1964).
Slater, John Clarke, Ph.D. (Harvard), Graduate Research Professor of Physics and Chemistry (1964-1964).
Slater, Rose C. L. Mooney, Ph.D. (Chicago), Visiting Professor of Chemistry (1964-1964).
Slaughter, John Eidell, M.A., Assistant Professor of Social Sciences (1959-1964).
Slotterbeck, Oberta Ann, Ph.D. (Texas), Postdoctoral Fellow, Mathematics (1969-1969).
Small, Kenneth Frederick, Director, Radio Station WRUF (1956-1956).
Small, Parker Adams, Jr., M.D. (University of Cincinnati), Professor and Chairman of Microbiology (1966-1966).
Small, Terence Samuel, M.A.Mus.Ed., Assistant Professor of Music (1964-1964).
Smallwood, Eileen M., Supervisor of Records and Registration (1951-1967).
Smallwood, Mark Harrison, M.S.E., Assistant Professor of Electrical Engineering (1958-1965).*
Smart, Grover C., Jr., Ph.D. (Wisconsin), Associate Nematologist, Agricultural Experiment Stations (1964-1967).

Smerdon, Ernest Thomas, Ph.D. (University of Missouri), Professor and Chairman, Department of Agricultural Engineering, (Agricultural Engineer) IFAS, (1968-1968).
Smith, Albert B., Ph.D. (North Carolina), Assistant Professor of Romance Languages (1963-1963).
Smith, Alexander Goudy, Ph.D. (Duke), Professor of Physics and Astronomy; Chairman for Astronomy (1948-1962).
Smith, Ann M., M.D.W., (Western Reserve University), Assistant Professor of Social Work (Psychiatry), (1967-1969).
Smith, Ann P., MN, Assistant Professor, College of Nursing (1967-1969).
Smith, Bryan Charles, Ed.D. (Oregon), Associate Professor of Health Education (1969-1969).
Smith, Carroll N., Ph.D. (George Washington), Professor of Entomology and Director, USDA Insect Attractants Behavior and Basic Biology Research Laboratory (1963-1963).
Smith, Cecil Nuckols, Ph.D. (California), Professor of Agricultural Economics and Agricultural Economist, Agricultural Experiment Stations (1952-1963).*
Smith, David Thornton, LL.B. (Boston University) Professor of Law (1968-1969).
Smith, Donald L., M.D. (Jefferson), Resident in Ophthalmology (1967-1967).
Smith, Dorothy Mary, M.Ed., Dean, College of Nursing; Chief of Nursing Practice, University Hospital and Clinics, and Professor of Nursing (1956-1956).
Smith, Edward Frank, E.E., Associate Professor of Electrical Engineering (1928-1937).
Smith, Frances Shaver, M.A., Assistant Librarian, Catalog (1967-1967).
Smith, Harrison Ballard, Ph.D. (University of Florida), Assistant Professor of Mechanical Engineering, GENESYS—West Palm Beach (1968-1969).
Smith, Herrick Hayner, M.S., M.L.A., Associate Professor of Landscape Architecture (1966-1966).
Smith, Jack Reginald, Ph.D. (Southern California), Associate Professor of Electrical Engineering (1964-1966).
Smith, James Hunn, M.S.M.E., Assistant Professor of Mechanical Engineering (1947-1952).
Smith, Jo Anne, M.A., Associate Professor of Journalism and Communications (1959-1968).*
Smith, John Anthony, M.M.E., Teaching Associate in Engineering Science and Mechanics (1967-1967).
Smith, Karen W., M.A., Counselor, Division of Housing, (1968-1968).
Smith, Kenneth L., Ph.D. (Missouri), Associate Professor of Dairy Science and Associate Microbiologist, Agricultural Experiment Station (1960-1966).
Smith, Mildred Free, M.Ed., Interim Teacher, P.K. Yonge Laboratory School (1969-1969).
Smith, Paul H., Ph.D. (University of California), Professor (Bacteriologist), IFAS (1969-1969).
Smith, Quentin M., Jr., D.D.S. (University of Tennessee), M.P.H. (University of Michigan), Professor and Chairman of Community Dentistry and Professor of Medicine, College of Medicine (1969-1969).
Smith, Ralph Leslie, M.S., Associate Professor (Associate Agronomist), IFAS, West Florida Experiment Station (1943-1943).
Smith, Rex Lanel, Ph.D. (Iowa State), Assistant Professor of Agronomy, IFAS (1968-1968).
Smith, Richard Clark, Ph.D. (Duke), Assistant Professor of Botany (1964-1964).
Smith, Richard T., M.D. (Tulane), Professor and Chairman of Pathology (1958-1967).
Smith, Roberts Coles, B.A., Assistant Communications Specialist, Agricultural Extension Service (1961-1961).
Smith, Ronald Ellis, Ph.D. (North Carolina State University), Assistant Professor of Civil Engineering (1966-1966).
Smith, T. Lynn, Ph.D. (Minnesota), Graduate Research Professor of Sociology (1949-1959).
Smith, Wayne H., Ph.D. (Mississippi State), Assistant Professor of Forestry and Assistant Forester, Agricultural Experiment Stations (1964-1964).
Smith, William Howard, Ph.D., District Agent, Agricultural Extension Service (1958-1970).

Smith, William Ward, Ph.D. (Tulane), Associate Research Professor of Entomology (1957-1966).
Smittle, Burrell Joe, Ph.D. (Rutgers), Professor of Entomology and Medical Entomologist, USDA Entomology Research Laboratory (1965-1965).
Smutz, Morton, Ph.D. (University of Wisconsin), Professor of Chemical Engineering; Associate Dean for Research, College of Engineering; Associate Director, Engineering and Industrial Experiment Station (1969-1969).
Smylie, Robert Frank, M.A., Assistant Professor of Social Sciences (1964-1967).*
Smyly, Margaret A., B.S., (University of Florida), Research Assistant in Obstetrics and Gynecology (1969-1969).
Snedaker, Samuel Curry, M.S., Research Assistant in Environmental Engineering (1968-1968).
Snider, Martha J., MN, Teaching Associate, College of Nursing (1965-1969).*
Snow, Jacquelyn Gregory, M.Ed., Instructor, P. K. Yonge Laboratory School, (1961-1968).*
Snyder, George H., Ph.D. (Ohio State), Assistant Professor (Assistant Soils Chemist), IFAS, Everglades Experiment Station (1967-1967).
Snyder, Harold E., M.D. (Vanderbilt), Clinical Instructor of Surgery (1969-1969).
Soar, Robert Stephen, Ph.D. (Minnesota), Professor of Education (1966-1966).
Sobel, Robert E., Ph.D. (George Washington University), Postdoctoral Fellow in Pathology (1969-1969).
Solis, Manuel Mauricio, M.S., Assistant Professor of Architecture (1969-1969).
Sonntag, Arch C., Ph.D. (Utah) Research Associate in Pharmacology (1968-1968).
Sonoda, Ronald Masahiro, Ph.D., (California), Assistant Professor (Assistant Plant Pathologist), IFAS, Everglades Experiment Station (1969-1969).
Souder, Daniel E., M.D. (University of Florida), Intern in Medicine (1969-1969).
Soule, James, Ph.D. (Florida) Professor of Plant Pathology (Horticulturist), IFAS, (1956-1967).
Sowers, William Dean, M.Ed., Instructor, P. K. Yonge Laboratory School (1960-1964).*
Spangler, Byron Dement, M.S.E., Associate Professor of Civil Engineering (1949-1956).
Spanier, John Winston, Ph.D. (Yale), Professor of Political Science (1957-1967).*
Spanier, Suzanne S., M.D. (University of Florida), Intern in Pathology (1969-1969).
Sparks, Linda Frances, M.S. in L.S., Assistant Librarian, Education Library (1961-1966).
Spears, Ludi Willey, M.S., Assistant Librarian, Assistant Professor of Library Science (1966-1966).
Speir, William H., B.S., Assistant Professor (Assistant Hydraulic Engineer) IFAS, USDA, Plantation Field Laboratory (1962-1962).
Spiegel, Eugene H., D.D.S. (University of Pennsylvania), Assistant Professor of Dentistry, College of Dentistry (1967-1967).
Spinks, Daniel Owen, Ph.D. (North Carolina State), Professor and Assistant Dean for Resident Instruction, IFAS (1947-1969).
Spivey, Herman Everette, Ph.D. (North Carolina), Acting Dean, College of Arts and Sciences and Professor of English (1936-1970).*
Spivey, John C., M.D. (Virginia) Resident in Medicine (1967-1968).
Spooner, George R., M.D. (Florida) Clinical Fellow in Medicine (1968-1968).
Springfield, Worley Thaxton, B.D. (Emory), Assistant Professor of Religion and Coordinator of Religious Activities (1968-1968).
Spurlock, Alvin Harold, M.S.A., Agricultural Economist, Agricultural Experiment Stations (1934-1953).
Squillace, Anthony E., Ph.D. (Florida), Professor of Forestry and Forester, USDA, Agricultural Experiment Stations (1965-1965).
Srygley, Ted Filo, M.S., Medical Librarian, Health Center Library (1966-1966).
St. Jacques, Ernest Howard, Ph.D. (George Peabody College) Assistant Dean of Academic Affairs and Associate Professor of Social Sciences (1969).
St. Petery, Julia R., M.D. (University of Florida), Intern in Pediatrics (1969-1969).
St. Petery, Louis B., Jr., M.D. (University of Florida), Intern in Pediatrics (1969-1969).
Stadtlander, David P., Ph.D. (Pennsylvania State), Assistant Professor of Mathematics (1966-1966).

Stagat, Robert Walter, Ph.D. (Rensselaer Polytechnic Institute), Interim Instructor in Physical Sciences (1968-1968).
Stage, John T., M.D. (Ohio State) Clinical Assistant Professor (JHEP) in Anesthesiology (1964-1968).
Stahmer, Harold M., Ph.D. (Cambridge), Associate Dean of the College of Arts and Sciences and Professor of Religion and Philosophy (1969-1969).
Stainsby, Wendell N., M.D. (Johns Hopkins), Professor of Physiology (1957-1969).
Stakely, James Owen, B.S.Arch., Associate Professor of Building Construction (1955-1955).
Stall, Robert Eugene, Ph.D. (Ohio State) Professor (Plant Pathologist) Institute of Food and Agricultural Sciences (1957-1969).
Stamper, James Harris, Ph.D. (Yale), Assistant Professor of Physics (1967-1967).
Standley, Gerald Brent, Ph.D. (Buffalo), Professor of Comprehensive Logic and Humanities, Adviser (1960-1968).
Stanley, Dennis Keith, M.A.E., Dean Emeritus of the College of Physical Education and Health and Professor of Professional Physical Education (1931-1969).*
Stanley, Harold R., D.D.S. (Maryland), Professor and Chairman, Division of Oral Pathology, College of Dentistry, and Professor, Department of Pathology, College of Medicine, (1968-1968).
Stanley, Patricia, M.S., Research Associate in Anatomical Sciences (1968-1969).
Stanley, Robert Greenblatt, Ph.D. (University of California), Professor of Forestry and Botany, and Forest Physiologist, Agricultural Experiment Stations (1965-1965).
Stanley, Robert Lee, Jr., Ph.D., (University of Georgia), Assistant Professor (Assistant Agronomist), IFAS, North Florida Experiment Station (1968-1968).
Stark, Richard Karl, Ph.D. (Vienna), Assistant Professor of Mathematics (1967-1967).
Stearns, Thomas Wesley, Ph.D. (Minnesota), Professor of Chemistry and Assistant Chairman of Department of Chemistry (1946-1955).
Steele, Katherine Landry, Ed.D., (Florida), Interim Assistant Professor of Education, (1969-1969).
Stein, Abraham M., Ph.D. (Southern California), Associate Professor of Biochemistry (1967-1967).
Stein, Gerald, M.D., (Pennsylvania), Instructor in Medicine (1966-1969).
Stein, Jeanne, A.A., Research Assistant in Pharmacology (1968-1968).
Stein, Joel M., M.D. (Florida), Trainee, Resident and Assistant in Psychiatry (1966-1966).
Stenger, Vincent G., M.D. (Johns Hopkins) Associate Professor of Obstetrics and Gynecology (1959-1967).
Stensgaard, William H., M.A., Assistant Director of Physical Plant (1964-1964).
Stephens, Foy Woodrow, M.P.H., Assistant Professor of Physical Education (1952-1956).
Stephens, James Morris, M.S.A., Assistant Vegetable Crops Specialist, Agricultural Extension Service (1962-1962).
Stephens, Richard Badenoch, LL.B., (University of Michigan), Professor of Law (1949-1954).*
Stephenson, Fred D., A.M. (University of Chicago), Instructor of Social Work in Psychiatry (1969-1969).
Stephenson, Sam E., Jr., M.D. (Vanderbilt), Professor of Surgery and Chairman of the Department of Surgery for JHEP (1968-1970).
Sterba, Richard Ludwick Anton, M.A., Assistant Professor of Economics (1956-1956).
Sterling, Dorothy, M.R.E., Teacher, P. K. Yonge Laboratory School (1967-1967).
Sterrett, Delbert Ellingsworth, Ed.D. (Peabody), Assistant Professor of Music (1948-1967).*
Stevens, Billie Knapp, M.A., Professor of Professional Physical Education (1936-1954).
Stevens, Clare C., M.S.W., Academic Professional II, (Social Work) Pediatrics (1968-1968).
Steward, Kerry Kalen, Ph.D., (Connecticut), Assistant Professor (Assistant Plant Physiologist), IFAS, USDA, Plantation Field Laboratory.
Stewart, Betty G., M.D. (Duke), Resident in Medicine (1967-1967).

Stewart, Ernest Harold, M.S., Associate Professor (Associate Soil Physicist), IFAS, USDA, Indian River Field Laboratory (1960-1960).
Stewart, H. Lee, M.D. (Duke), Resident in Ophthalmology (1966-1966).
Stewart, Ivan, Ph.D., (Rutgers), Professor (Biochemist), IFAS, Citrus Experiment Station (1951-1961).
Stewart, John L., B.S., B.A., Assistant Professor of Finance (1968-1968).
Stewart, Kirby, M.P.H., Athletic Director, P. K. Yonge Laboratory School (1966-1966).
Stewart, Robert Earl, Ph.D. (University of Waterloo), Assistant Professor of Environmental Engineering (1966-1966).
Stewart, Ronald B., B.S., (University of Florida), Research Assistant in Medicine (1969-1969).
Stewart, Ruth F., M.S., Assistant Professor, College of Nursing, (1965-1967).
Stewart, William Kirby, M.P.H., Instructor, P. K. Yonge Laboratory School (1966-1966).
Stiefel, John R., M.D. (Emory), Clinical Associate in Psychiatry (1967-1967).
Still, Robert H., Jr., M.D. (Medical College of Georgia), Clinical Instructor of Surgery (1969-1969) (JHEP).
Stirling, B. Kyle, M.A., Instructor in Journalism and Communications (1965-1968).
Stockstill, Roy Edward, B.S., Assistant Professor of Engineering Graphics (1955-1957).
Stokes, Charlotte Fowler, M.A., Interim Instructor in English (1966-1966).*
Stollar, Dewey H., Ph.D., (Ohio State), Visiting Professor of Education (1969-1969).
Stone, Williard E., Ph.D. (Pennsylvania), Professor of Accounting and Chairman of Department of Accounting (1960-1960).
Storer, Morris Brewster, Ph.D. (Harvard), Professor of Humanities (1947-1947).
Stormer, Jay R., M.Ed., Assistant Dean for Student Development (1965-1969).
Stoufer, Robert Carl, Ph.D. (Ohio State), Associate Professor of Chemistry (1958-1967).
Stranberg, James Oliver, Ph.D., (Wisconsin), Assistant Professor (Assistant Plant Pathologist), IFAS, Central Florida Experiment Station (1967-1967).
Straughn, Alto Alfred, Ph.D. (Wisconsin), Assistant Professor (Assistant Director for Extension), IFAS, (1959-1963).*
Strayer, John Robert, M.Ag., Assistant Entomologist, Agricultural Extension Service (1965-1965).
Strecker, George Edison, Ph.D. (Tulane), Assistant Professor of Mathematics (1967-1967).
Streiff, Richard Reinhart, M.D. (Basel, Switzerland), Assistant Professor of Medicine (1967-1967).
Strickland, Albert Carson, M.S., Associate Librarian, IFAS (1958-1969).
Strickland, Douglas Jerry, Ph.D. (Pittsburgh), Visiting Instructor in Physics (1968-1968).
Strickland, JoAnn Hopkins, Ed.D. (Peabody), Associate Professor of Education (1967-1967).
Strickland, Kenneth Ray, M.S.F., Interim Research Associate, Agricultural Experiment Stations (1960-1964).
Stripling, Robert Olin, E.D. (Columbia), Professor of Education (1941-1958).*
Strobel, James Walter, Ph.D. (Washington State), Professor (Plant Pathologist) and Head, IFAS, Gulf Coast Experiment Station (1959-1968).
Strozier, Virginia Ragland, M.A., Assistant Professor of Nursing (1957-1958).*
Stryker, Philip David, Ph.D. (Northwestern), Professor of English, Adviser (1947-1964).*
Stubbs, George M., M.D. (Emory), Clinical Instructor of Surgery (JHEP) (1969-1969).
Stuiver, Minze, M.S.E., Research Associate in Coastal and Oceanographic Engineering (1965-1966).
Sturgill, Claude C., Ph.D. (Kentucky), Associate Professor of History (1969-1969).
Sturrock, Ruth Mary, B.S., Research Associate in Anatomical Sciences (1968-1968).
Suarez, Andrés, D.C.L. (Havana), Professor of History, Political Science, and Latin American Studies (1965-1965).
Suchman, David I., Ph.D. (Ohio State), Counseling Psychologist, University Counseling Center, Assistant Professor of Psychology, (1967-1967).

Sugg, Richard P., Ph.D. (Florida), Interim Assistant Professor of Humanities (1969-1969).
Suit, Ross Frisbie, Ph.D., (Iowa State), Professor (Plant Pathologist) IFAS, Citrus Experiment Station (1945-1946).
Sullivan, Edward Thomas, D.F. (Duke), Associate Professor of Forest Economics and Associate Forester, Agricultural Experiment Stations (1959-1959).
Sullivan, Thomas J., M.D. (University of Pittsburg), Intern in Medicine (1969-1969).
Summers, Thomas Eugene, Ph.D. (Iowa), Associate Professor of Entomology (1966-1966).
Sumner, Wilbur C., M.D. (Medical College of Georgia), Clinical Assistant Professor of Surgery—JHEP—(1969-1969).
Sunwall, James Raymond, Ph.D. (Iowa), Associate Professor of Humanities, Adviser (1957-1965).
Susag, Russell Harry, Ph.D. (University of Minnesota), Associate Professor of Environmental Engineering (1968-1968).
Suter, Emanuel, M.D. (Basle), Dean of the College of Medicine (1965); Professor of Microbiology (1956-1965).
Suter, Max, M.D. (Tulane) Clinical Associate Professor (JHEP) of Obstetrics and Gynecology (1968-1968).
Sutherland, Alan Duryea, Ph.D. (Illinois), Professor of Electrical Engineering (1958-1965).*
Sutherland, Berry, M.S., Interim Assistant Professor of Geology (1969-1969).
Sutton, Richard Lee, B.A., Assistant Professor of Political Science (1968-1968).
Suvarnakich, Kavi, M.D. (Bangkok), Resident in Psychiatry (1969-1969).
Suzuki, Hisayoshi, Ph.D. (Tohoku University, Japan), Research Associate of Speech (1969-1969).
Svarlien, Oscar. Ph.D. (North Carolina), Professor of Political Science (1946-1955).*
Swanson, Daniel Cramer, Ph.D. (Cornell), Professor of Physics (1929-1949).
Sweat, Charles Jenkins, M.H.A., Assistant Professor of Health and Hospital Administration, (1966-1969).
Swenson, Edward W., M.D. (Nebraska), Associate Professor of Medicine (1964-1964).
Swett, Manette, M.A., Instructor, P. K. Yonge Laboratory School (1948-1953).
Swinford, Kenneth Roberts, Ph.D. (Michigan), Professor of Forest Management and Forester, Agricultural Experiment Stations (1937-1960).*
Swofford, Leanne J., B.S., Research Assistant in Anesthesiology (1969-1969).
Takiguchi, Tomoo, M.D. (Kyoto University, Japan) Research Associate in Pathology (1968-1968).
Talbert, James L., M.D. (Vanderbilt), Associate Professor of Pediatric Surgery (1967-1967).
Talley, Nancy C., MN, Instructor, College of Nursing (1969-1969).
Tams, Madge Penton, B.A. in L.S., Assistant Librarian, Reference and Bibliography (1958-1958).
Tangeman, Richard Louis, Ph.D. (Nebraska), Assistant Professor of Mathematics (1968-1968).
Tappan, William Burgess, M.S.A., Associate Professor (Associate Entomologist), IFAS, North Florida Experiment Station (1955-1967).
Tarjan, Arman Charles, Ph.D., (Maryland), Professor (Nematologist), IFAS, Citrus Experiment Station (1955-1958).*
Tarrant, Paul, Ph.D. (Duke), Professor of Chemistry (1946-1957).
Taylor, Carolyn Dickinson, A.B., Research Associate, College of Nursing and Associate Professor of Anthropology (1959-1961).
Taylor, Frank H. G., Associate Professor of Humanities (1964-1968).
Taylor, G. Dekle, M.D., (University of Michigan), Clinical Professor of Surgery (1969-1969).
Taylor, Grace Woodall, J.D. (Florida), Law Librarian (1956-1963).
Taylor, Howard Edgar, B.E.E., Assistant in Research of Chemistry (1962-1962).
Taylor, Samuel W., B.A., Interim Instructor of Political Science (1969-1969).
Taylor, Thomas Lee, M.D. (Cornell) Assistant Professor of Radiology (1968-1968).
Taylor, William Jape, M.D. (Harvard), Professor of Medicine (1958-1964).

Taylor, William Murry, Jr., D.V.M. (Ohio State), M.S. Assistant Professor of Veterinary Science (Assistant Microbiologist), Institute of Food and Agricultural Sciences (1967-1967).

Teachey, William S., M.D. (University of North Carolina), Resident in Surgery (1968-1969).

Teague, Perry O., Ph.D. (Oklahoma) Assistant Professor of Pathology (1968-1968).

Teahan, James Thomas, M.Ed., Interim Instructor in English (1969-1969).

Teas, Donald Claude, Ph.D. (Texas), Associate Professor of Speech, Physiology, and Psychology (1967-1967).

Teeters, Samuel Boyd, M.A., Assistant Professor of Music (1959-1963).

Tefertiller, Kenneth Ray, Ph.D. (Illinois), Professor and Chairman, Department of Agricultural Economics, Institute of Food and Agricultural Sciences (1965-1965).

Teller, Morton Herman, M.A.E., Assistant Professor of Physics (1943-1967).*

Tennant, Leo Keith, M.P.H., Instructor of Physical Education (1967-1968).

Teply, Mark Lawrence, Ph.D. (Nebraska), Assistant Professor of Mathematics (1968-1968).

Terhune, James L., Ph.D. (Indiana), Assistant Professor of Journalism and Communications (1967-1967).

Terino, Edward, M.D. (Albany Medical College), Clinical Fellow in Surgery (1969-1969).

Terry, Juan E., M.S.L.S., Assistant Librarian, Health Center Library (1968-1968).

Tesar, Delbert, Ph.D. (Georgia Institute of Technology), Professor of Mechanical Engineering (1964-1969).*

Teske, Richard Henry, D.V.M. (Georgia), Interim Assistant Professor, Agricultural Experiment Station (1967-1968).

Tew, Roy Edwards, Ph.D. (Ohio State), Professor of Speech (1937-1966).*

Thatcher, William Watters, Ph.D. (Michigan State), Assistant Professor of Dairy Science and Assistant Animal Physiologist, Agricultural Experiment Station (1968-1968).

Thomanek, Erich, Ph.D., (Illinois), Assistant Professor of Management (1969-1969).

Thomas, Billy Seay, Ph.D. (Vanderbilt), Assistant Professor of Physics (1960-1960).

Thomas, Joseph Michael, B.A., Research Associate, Urban Studies Bureau (1966-1968).

Thomas, Joyce Gertrude, M.S., Instructor in Comprehensive Logic; Counselor, Division of Housing (1964-1968).*

Thomas, Michael E., Ph.D. (Johns Hopkins), Professor of Industrial and Systems Engineering (1965-1969).

Thomas, Roger K., Jr., Postdoctoral Fellow in Center for Neurobiological Sciences (1966-1966).

Thomas, William Clark, Jr., M.D. (Cornell) Professor of Medicine (1957-1963).

Thomason, Oliver Bruce, Ph.D. (Pennsylvania State), Assistant Dean of the College of Health Related Professions, Professor and Chairman, Department of Rehabilitation Counseling (1942-1964).*

Thomasson, George O., M.D. (Texas), Instructor of Medicine (1969-1969).

Thompson, Buford Dale, Ph.D. (Florida), Professor of Vegetable Crops and Horticulturist, Agricultural Experiment Stations (1948-1966).*

Thompson, Fred G., Ph.D. (University of Miami), Assistant Curator, Florida State Museum and Interim Assistant Professor of Zoology (1966-1968).

Thompson, Irene, M.A., Assistant Professor of English (1966-1967).

Thompson, Janice Elaine, M.S., Assistant Professor of Physical Education (1967-1967).

Thompson, John B., III, M.P.H., Assistant Football Coach (1966-1966).

Thompson, Leonard Garnett, Jr., Ph.D. (Iowa State), Soils Chemist, Agricultural Experiment Stations (1945-1945).

Thompson, Neal Philip, Ph.D. (Princeton), Assistant Professor (Assistant Biochemist), IFAS (1965-1965).

Thompson, Ralph Burnham, Ph.D. (Texas), Professor of Marketing (1955-1960).*

Thompson, Robert J., M.D. (Wayne State University College), Associate Professor of Obstetrics and Gynecology, Chairman of the Department of Obstetrics and Gynecology for JHEP, (1970-1970).

Thompson, Yvonne Marie, B.S.P.E., Interim Instructor of Physical Education (1967-1967).
Thornby, John I., Ph.D. (Minnesota), Assistant Professor of Statistics (1966-1966).
Thorne, Jack Foster, Ph.D. (Alabama), Assistant Professor of Accounting (1968-1968).
Thornton, George Daniel, Ph.D. (Iowa State), Professor and Assistant Dean for Resident Instruction, IFAS (1941-1956).
Thurston, Paul Thayer, Ph.D. (Florida), Professor of Comprehensive Logic and English, Adviser (1957-1968).
Tiffin, William Truitt, M.S.M.E., Professor of Metallurgical and Materials Engineering (1944-1954).
Tigadi, Chanappa B., B.S.C., B.A., Visiting Assistant Professor of Economics (1969-1969).
Tillman, Chester Earl, Ed.D. (Florida), Assistant Professor of English and Assistant Director of Reading Laboratory and Clinic (1967-1969).
Tillman, Wiley James, Jr., M.Arch., Associate Professor of Architecture (1952-1968).*
Timmerman, Eugene Melvin, Ph.D. (South Carolina), Assistant Professor of Education (1960-1960).
Ting, Sil Vung, Ph.D., (Ohio State), Professor (Biochemist), IFAS, FCC, Citrus Experiment Station (1953-1968).
Tingle, David, M.D. (U. of Sheffield, England), Clinical Associate in Psychiatry (1964-1967).
Tison, Jean Pieper, M.A.E., Instructor in Education (1936-1948).
Tjarks, German O. E., Ph.D. (University of Buenos Aires), Visiting Professor of History (1968-1968).
Todd, Eugene Allan, Ed.D. (Houston), Associate Professor of Education and Chairman, Department of Secondary Education (1966-1967).
Todd, John Richard, M.A., Interim Instructor in Social Sciences (1968-1968).
Tohme, Souheil M., M.D. (French University of Medicine), Resident in Surgery (1969-1969).
Tolbert, Elias Lake, Ed.D. (Columbia), Interim Associate Professor of Education (1967-1967).
Toner, Raymond J., M.A., Assistant Director, Center for Latin American Studies (1965-1965).
Torre, Rocco J., B.A., Captain, Assistant Professor of Aerospace Studies (1968-1968).
Tou, Julius T., Ph.D. (Yale), Graduate Research Professor of Electrical Engineering (1967-1967).
Torosian, George, Ph.D. (University of Wisconsin), Assistant Professor of Pharmacy, (1969-1969).
Townsend, William M., M.D. (Tulane), Clinical Fellow in Ophthalmology (1969-1969).
Travis, David M., M.D. (Vanderbilt University), Associate Professor of Pharmacology and Medicine (1958-1966).
Trickey, Samuel Baldwin, Ph.D. (Texas A&M), Visiting Assistant Professor of Physics (1968-1968).
Trimmer, John Morris, M.B.A., Teaching Associate in Building Construction (1958-1960).
Troupin, Edward Charles, M.M., Professor of Music (1960-1968).
Truax, Charles B., Ph.D., (Wisconsin), Visiting Professor of Education (1969-1969).
Trudeau, Walter L., M.D. (Oxford), Assistant Professor of Medicine (1969-1969).
Trueblood, Felicity, M.A., Assistant Professor of English and Director, Program of English as Foreign Language (1964-1968).
Truett, Dale B., Ph.D. (Texas), Assistant Professor of Economics (1967-1967).
Tuazon, Jaime G., M.D. (University of Santo Tomas), Resident in Anesthesiology (1969-1969).
Tucker, David Patrick, Ph.D. (California) Assistant Professor (Assistant Horticulturist) IFAS, (1967-1967).
Tucker, Frank C., Jr., M.D. (University of North Carolina), Resident in Surgery (1969-1969).

Tunison, Paul Bliss, M.Ed., Assistant Professor of Physical Sciences; Adviser (1954-1959).
Tunstall, George C., Ph.D. (Princeton), Assistant Professor of German (1969-1969).
Turmail, George, M.D. (Florida), Resident in Surgery (1966-1966).
Turner, Eldon R., Ph.D. (Kansas State), Interim Assistant Professor of History (1969-1969).
Turner, Ira Douglas, B.S., Director of Student Financial Aid, (1965-1967).
Turner, William G., M.D. (Washington University), Intern in Medicine (1969-1969).
Turvaville, Lester Jackson, Ph.D. (Georgia Tech), Associate Professor of Industrial and Systems Engineering (1966-1968).*
Tweed, C. Gilbert, M.D. (Duke), Resident in Surgery (1967-1967).
Tyler, Max Ezra, Ph.D. (Ohio State), Professor and Chairman, Department of Bacteriology (Bacteriologist), IFAS (1953-1953).
Tyler, Peter D., M.D. (Cornell), Resident in Surgery (1967-1967).
Tyler, William Gurdon, Ph.D., (Fletcher School of Law and Diplomacy, Tufts University), Assistant Professor of Economics (1969-1969).
Tyner, Fred Hilmer, Jr., Ph.D. (Oklahoma State), Associate Agricutural Economist and Associate Professor of Agricultural Economics, Agricultural Experiment Station (1968-1968).
Tyner, Mack, Ph.D. (Cincinnati), Professor of Chemical Engineering (1944-1956).
Tyson, Janie Lee, Senior Research Assistant (Library), IFAS (1958-1966).
Tysseland, Milford S., Ph.D. (Minnesota), Associate Professor of Finance (1968-1968).
Uelsmann, Jerry Norman, M.S., M.F.A., Professor of Art (1960-1969).*
Ueno, Takeshi, B.A., Research Associate in Zooarchaeology, Florida State Museum (1966-1966).
Uekert, D. N., Ph.D., (Colorado State), Assistant Professor (Assistant Bacteriologist) Big Bend Horticulture Laboratory, IFAS, (1969-1969).
Uhrig, Robert Eugene, Ph.D. (Iowa State), Dean of the College of Engineering; Director of the Engineering and Industrial Experiment Station; Professor of Nuclear Engineering Sciences (1960-1968).
Uotila, Maija Helena, R.N., Assistant in Ophthalmology (1966-1969).
Upshaw, Winton Lamar, B.S.B.A., Administrative Assistant II, College of Health Related Professions (1962-1967).
Vala, Martin T., Ph.D. (University of Chicago), Assistant Professor of Chemistry (1967-1967).
Valisalo, Paavo Emil, M.S.M.E., Assistant Professor of Industrial and Systems Engineering (1961-1962).
Valk, Melvin Ehrman, Ph.D. (Wisconsin), Associate Professor of German (1947-1947).
Van Arnam, Carl E., M.D. (Oregon) Clinical Associate in Ophthalmology (1961-1968).
Vance, John Milton, Ph.D. (Texas), Assistant Professor of Mechanical Engineering (1969-1969).
Van De Riet, Hani Kamp, Ph.D. (Florida State), Assistant Professor of Psychology (1963-1963).
Van De Riet, Vernon Dwayne, Ph.D. (Florida State), Associate Professor of Clinical Psychology and Psychology (1962-1968).
van der Ziel, Aldert, Ph.D. (Groningen), Graduate Research Professor of Electrical Engineering (1968-1968).
Vandevelde, Alexander G., M.D. (University of St. Louvain), Clinical Fellow in Medicine (1969-1969).
Vandiver, Joseph S., Ph.D. (Louisiana State), Professor of Sociology (1962-1962).
Van Fleet, Imelda, M.A., Interim Teacher, P. K. Yonge Laboratory School (1968-1968).
Van Gelder, Eduard, M.A., Assistant Director of Admissions (1966-1966).
Van Middelem, Charles Henry, Ph.D. (Cornell), Professor (Biochemist), IFAS (1951-1962).
Van Mierop, Lodewyk H.S., M.D. (Leiden, Netherlands), Professor of Pediatrics (1966-1968).
Van Rinsvelt, Henri Albert, Ph.D. (Utrecht), Assistant Professor of Physics (1967-1967).

Varma, Arun Kumar, Ph.D. (Alberta), Associate Professor of Mathematics (1967-1969).
Varnes, Paul Ray, Ed.D. (University of Florida), Associate Professor of Professional Physical Education and Chairman of the Department of Intramural Athletics and Recreation (1968-1968).
Vasil, Indra Kumar, Ph.D. (University of Delhi, India), Associate Professor, Division of Biological Sciences (Botany) (1967-1968).
Vaughan, Elizabeth O., M.D. (University of Florida), Resident in Obstetrics and Gynecology (1969-1969).
Vaughn, Rufus M., M.D. (Alabama), Associate Professor of Psychiatry (1966-1969).
Veley, Corydon Alexander, Jr., B.S., Lieutenant Colonel, U.S. Army, Assistant Professor of Military Science (1969-1969).
Venters, David B., M.D. (University of Alberta) Resident in Radiology (1969-1969).
Vergara, Alehandro F., M.D. (University of Madrid), Resident in Psychiatry (1969-1969).
Verink, Ellis Daniel, Jr., Ph.D. (Ohio State), Professor of Metallurgical and Materials Engineering (1965-1968).
Verma, Akhileshwar Prasad, Ph.D. (Florida), Assistant Professor of Coastal and Oceanographic Engineering (1968-1969).
Vernon, Charles R., M.D. (Duke) Fellow in Medicine (1966-1968).
Vernon, Jack R., Ph.D. (Northwestern), Associate Professor of Economics (1967-1967).
Vickers, Frank Dow, Ph.D. (Florida), Associate Professor of Industrial and Systems Engineering (1963-1967).
Victorica, B.E., M.D. (Argentina), Instructor and Special Trainee in Pediatrics (1964-1967).
Vierck, Charles J., Ph.D. (Florida), Assistant Research Professor in Surgery (1965-1965).
Vierow, John Webster, M.F.A., Interim Instructor of Art (1969).
Vigorita, John Francis, B.A., Interim Assistant Professor of Classical Languages and Linguistics (1969-1969).
Vilallonga, Federico, Ph.D. (University of Buenos Aires), Professor of Pharmacy, (1969-1969).
Villalon, Benigno, Ph.D., (Texas A&M), Assistant Professor (Assistant Plant Pathologist), IFAS, Sub-Tropical Experiment Station (1969-1969).
Villard, Kenneth Lee, B.S., Counselor, Division of Housing (1968-1968).
Virtue, Clarence M., M.D. (University of Rochester), Clinical Fellow in Pediatrics (1969-1969).
Vogel, Joseph F., Ph.D. (Florida), Assistant Professor of English (1965-1965).
Vogel, Phyllis Palmer, M.A., Instructor of Education (1966-1967).
Vogel, Ronald Joseph, Ph.D., (University of Wisconsin), Assistant Professor of Economics (1969-1969).
Vogh, Betty Pohl, Ph.D. (Florida) Assistant Professor in Physiology (1964-1968).
Voichysonk, Bernard Francis, M.F.A., Associate Professor of Architecture (1959-1969).
Voitle, Robert Allen, Ph.D. (Tennessee), Assistant Professor (Assistant Physiologist), IFAS (1969-1969).
Volk, Gaylord Monroe, Ph.D. (Wisconsin), Soils Chemist, Agricultural Experiment Station (1939-1939).
Von Bruchhausen, Volkmar G., Ph.D. (Goethe University, Germany) Research Associate in Pharmacology (1968-1968).
Von Maur, Richard K., M.D. (Ohio State), Intern in Medicine (1969-1969).
Vontz, Friedrich K., M.D. (Medical Academy of Dusseldorf), Clinical Assistant Professor of Surgery—JHEP—(1969-1969).
Voss, Elbert, Ph.D. (Florida), Professor of Pharmacology (1948-1948).
Voyles, Louis Vernon, B.A., Director of Records and Registration (1948-1965).
Vroom, Frederic Q., M.D. (Alabama) Assistant Professor of Medicine (1968-1968).
Wagemaker, Herbert Jr., M.D. (Hahnemann Medical School), Resident in Psychiatry (1967-1969).
Waglow, Irving Frederick, Ed.D. (New York), Professor of Physical Education and Chairman, Department of Required Physical Education for Men (1946-1965).

Wagner, William Grant, M.Arch., Director of Bureau of Research and Associate Professor of Architecture (1964-1967).
Wahl, F. Michael, Ph.D. (Illinois), Professor and Chairman of Department of Geology (1969-1969).
Waites, Robert Ellsworth, Ph.D. (Ohio State), Associate Entomologist (1951-1968).
Wakeman, Donald Lee, M.S.A., Associate Professor of Animal Science and Associate Animal Husbandman, Agricultural Experiment Stations (1957-1967).
Walbroel, Charles E., M.D. (University of Florida), Resident in Radiology (1969-1969).
Waldman, Robert, M.D. (Washington University), Assistant Professor of Medicine (1967-1969).
Waldo, Tommy Ruth, Ph.D. (Florida), Associate Professor of English (1955-1968).*
Walker, Biron Helton, M.A., Associate Professor of English (1942-1963).
Walker, Don W., Ph.D., (Texas Christian), Postdoctoral Fellow in Neurobiological Sciences (1968-1969).
Walker, John Elliott, Ed.D. (Florida), Assistant Professor of Social Sciences (1964-1967).
Walker, Robert Dixon, Jr., M.S., Professor of Chemical Engineering and Acting Chairman of the Department (1944-1969).
Walker, Robert Lynn, Ph.D. (Stanford), Professor of Electrical Engineering, Resident Director GENESYS—Port Canaveral (1965-1965).
Walker, Sue Roberts, B.S., Assistant Librarian, Acquisitions (1947-1947).
Walker, Thomas Jefferson, Ph.D. (Ohio State), Professor of Biological Sciences and Entomology (1957-1968).
Wallace, Alexander Doniphan, Ph.D. (Virginia), Graduate Research Professor of Mathematics (1963-1969).
Wallace, Alvin Thomas, Ph.D., (North Carolina), Professor (Geneticist) and Assistant Dean for Research, IFAS, (1950-1968).
Wallace, Harold Dean, Ph.D. (Cornell), Professor of Animal Science and Animal Nutritionist, Agricultural Experiment Stations (1950-1961).
Wallace, Howard Keefer, Ph.D. (Florida), Professor of Zoology (1932-1949).
Wallace, James G., M.D. (University of North Carolina), Intern in Surgery (1969-1969).
Wallace, John B., Jr., Ph.D. (Florida), Assistant Professor of Management (1967-1968).
Wallace, Maxwell Joseph, Ph.D. (Cornell), Associate Professor of French (1936-1962).*
Wallace, Paul F., M.D. (Chicago), Clinical Associate in Surgery (1961-1961).
Wallbrunn, Henry Maurice, Ph.D. (Chicago), Associate Professor of Zoology (1951-1963).
Wallis, Warren Reuben, B.S., Assistant Professor (Assistant Meteorologist), IFAS, USWB, Weather Forecasting Service (1960-1960).
Walsh, Beth Howell, M.S., Assistant Professor (Extension Food Specialist), IFAS, (1967-1967).
Walsh, Helen Evelyn, A.B., Research Associate in Obstetrics and Gynecology (1962-1965).
Walter, William Austin, Ph.D. (University of Florida), Associate Professor of Electrical Engineering; Associate Professor-in-Charge, GENESYS-Daytona Beach (1965-1969).*
Walters, Yancy Bailey, M.S., Professor (Extension Home Economist, Programs), IFAS, (1965-1965).
Waltman, Stephen R., M.D. (Yale), Clinical Fellow in Ophthalmology (1969-1969).
Walton, Bruce E., M.D. (Western Reserve), Clinical Associate in Surgery (1965-1965).
Wan, Eliza H., M.A. in L.S., Assistant Librarian, Documents (1968-1968).
Ward, Daniel Bertram, Ph.D. (Cornell), Associate Professor of Botany and Associate Botanist, Agricultural Experiment Stations (1958-1967).
Ward, John Lawrence, M.A., M.F.A., Assistant Professor of Art (1966-1968).*
Ward, Phillip, A., M.F.A., Associate Professor of Art (1959-1968).
Wardowski, Wilfred Francis, Ph.D., (Michigan State) Assistant Professor (Assistant Horticultrist) IFAS, (1969-1969).

Ware, William B., Ph.D. (Northwestern), Assistant Professor of Education (1968-1968).
Warheit, George J., Ph.D. (Ohio State), Assistant Professor of Psychiatry and Assistant Professor of Sociology (1969-1969).
Warmke, Germaine L., M.S., Research Assistant in Medicine (1967-1967).
Warmke, Harry Earl, Ph.D. (Stanford), Professor of Agronomy, USDA, IFAS (1964-1964).
Warn, Martha Fleming, M.A., Interim Assistant Professor of English (1969-1969).
Warner, Dennis Dale, B.S.P., Instructor of Pharmacy (1967-1967).
Warner, Willie A., M.D. (Wisconsin), Associate Professor of Surgery (1966-1969).
Warnick, Alvin Cropper, Ph.D. (Wisconsin), Professor of Animal Science and Animal Physiologist, Agricultural Experiment Stations (1953-1962).
Warren, Jessie Alma, M.A. in L.S., Assistant Communications Specialist, Agricultural Extension Service. Tallahassee (1951-1951).
Warson, Samuel R., M.D. (McGill), Professor in Psychiatry (1964-1967).
Wartenberg, Gerd, Ph.D. (University of Kiel), Interim Assistant Visiting Professor of Philosophy (1969-1969).
Wass, Hannelore Lina, Ph.D. (Michigan), Assistant Professor of Education (1969-1969).
Wassom, John Clark, M.A., Interim Assistant Professor of Finance (1966-1966).
Waters, Roger M., M.D. (Georgetown Medical School), Resident in Pediatrics (1969-1969).
Waters, Willie Estel, Ph.D. (Florida) Professor (Horticulturist) and Head, Ridge Ornamental Horticulture Lab, IFAS (1960-1968).
Watson, Gary W., M.D. (University of Florida), Intern in Medicine (1969-1969).
Watson, James Kenneth, Ph.D. (Rice), Associate Professor of Electrical Engineering (1966-1966).
Watson, Lillian Jeannine, B.S., Research Assistant in Medicine (1967-1967).
Watson, Mary Caldwell, B.S. in L.S., Assistant Librarian, Reference and Bibliography (1960-1960).
Watson, William J., Jr. (Florida), B.S.P.E., Director of Alumni Services (1966-1966).
Wattenbarger, James L., Ed.D. (Florida), Professor of Education (1968-1968).
Wattleworth, Joseph A., Ph.D. (Northwestern University), Professor of Civil Engineering (1969-1969).
Watts, Earle Hunt, B.S., Assistant Professor of Mechanical Engineering (1957-1957).
Waugh, Butler Huggins, Ph.D. (Indiana), Associate Professor of English; Editor, Division of Sponsored Research (1961-1961).*
Waugh, Joan Meredith, M.N., Instructor, College of Nursing (1966-1966).
Wayne, John Bruce, M.B.A., Research Assistant, College of Medicine (1968-1968).
Weaver, Anna Louise, B.S. in L.S., Assistant Librarian in charge of Architecture and Fine Arts Library (1959-1962).*
Weaver, William Bancroft, M.S., Assistant Librarian, IFAS (1964-1967).
Weaver, William Glen, Jr., M.S., Interim Instructor in Biological Sciences (1967-1967).
Webb, Gilson S., M.D. (Tennessee), Instructor in Psychiatry (1967-1967).
Webb, Howard W., M.D. (Emory), Clinical Instructor in Surgery—JHEP—(1969-1969).
Webb, John V., M.A., Associate Professor of Journalism and Communications (1958-1966).
Webb, Sawney David, Ph.D. (California), Assistant Curator of Vertebrate Paleontology, Florida State Museum; Assistant Professor of Zoology (1964-1964).
Webb, Wilse Bernard, Ph.D. (State University of Iowa), Professor of Psychology (1958-1958).*
Webber, Irving L., Ph.D. (Louisiana State), Professor of Sociology (1947-1963).*
Weber, Jean M., B.S., (St. Mary's College), Research Associate in Obstetrics and Gynecology (1967-1969).
Webster, Gerald Byron, Ed.D. (Arizona), Assistant Professor of Education (1967-1967).

Weeks, John Wesley, M.D. (Duke), Resident in Obstetrics and Gynecology (1966-1966).
Weems, Howard Vincent, Jr., Ph.D. (Ohio), Associate Professor of Entomology (1966-1966).
Wehlburg, Albert Frederich Cornelius, M.A., Interim Instructor of Speech (1966-1966).
Wehlburg, Cornelis, Ph.D. (Utrecht), Plant Pathologist, Div. of Plant Industry (1968-1968).
Weidhaas, Donald E., Ph.D. (Cornell), Professor of Entomology and Investigations Leader, USDA Entomology Laboratory (1967-1967).
Weidner, James Paul, B.S., Research Associate in Chemical Engineering (1961-1965).
Weigel, Walter, W., M.D. (Emory) Clinical Instructor in Medicine (1959-1959).
Weimer, Rae O., Dean Emeritus and Professor of Journalism and Communications and Special Assistant to the President (1949-1968).
Weingartner, David Peter, Ph.D., (Michigan State), Assistant Professor (Assistant Plant Pathologist), IFAS, Potato Investigations Laboratory (1969-1969).
Weinshelbaum, Arlene, M.D. (University of Chicago), Resident in Surgery (1969-1969).
Weinshelbaum, Edward I., M.D. (University of Chicago), Assistant Professor of Surgery (1969-1969).
Weinstein, Ira, Ph.D. (George Washington University), Associate Professor of Pharmacology (1969-1969).
Weiss, Charles F., M.D. (Vanderbilt), Associate Professor, Instructor of Pediatrics and Pharmacology (1969-1969).
Weiss, David, LL.B. (Harvard) Associate Law Librarian (1969-1969).
Welborn, Sarah, M.A., Interim Instructor in Humanities (1968-1969).
Weldon, Lyle W., Ph.D., (Wyoming), Associate Professor (Associate Agronomist), IFAS, USDA, Plantation Field Laboratory (1960-1967).
Wellborn, Charles G., Jr., M.A., Assistant Professor of Journalism and Communications (1966-1966).
Wellborn, Walter H., Jr., M.D. (Emory University), Clinical Associate in Psychiatry (1965-1965).
Weller, Henry Richard, Ph.D. (Duke), Assistant Professor of Physics (1968-1968).
Wells, Edward L., B.F.A., Instructor in Journalism and Communications (1969-1969).
Wells, Philip H., M.D. (University of Florida), Intern in Surgery (1969-1969).
Wells, Thomas Nathan, B.S.E.E., University Business Manager (1950-1968).
Welsch, Walter Roland, M.Ed., Assistant Professor of Physical Education and Assistant Track Coach (1954-1959).
Weltner, William, Jr., Ph.D. (California), Professor of Chemistry (1966-1966).
Wenzel, Evelyn Louise, Ed.D. (Columbia), Associate Professor of Education (1958-1964).*
Wenzel, Frederick William, Jr., Ph.D., (Massachusetts), Professor (Chemist), IFAS, Citrus Experiment Station (1948-1948).
Wershow, Irving Robert, Ph.D. (Yale), Professor of Spanish; Acting Director of African Studies Program (1946-1964).*
West, David Alan, J.D., Coordinator for Student Conduct (1969-1969).
West, Felicia E., M.Ed., Teacher P.K. Yonge Laboratory School (1967-1969).
West, Sherlie Hill, Ph.D. (Illinois), Professor of Agronomy, USDA, IFAS (1958-1969).
Westerberg, Arthur William, Ph.D. (University of London), Assistant Professor of Chemical Engineering (1967-1967).
Westfall, Minter Jackson, Jr., Ph.D. (Cornell), Professor of Biological Sciences, Zoology, and Entomology; Curator of Biological Sciences, Florida State Museum (1947-1969).
Westgate, Philip John, Ph.D., (Cornell), Professor (Horticulturist), IFAS, Central Florida Experiment Station (1943-1960).*
Wethington, John Abner, Jr., Ph.D. (Northwestern), Professor of Nuclear Engineering (1953-1960).
Wetterqvist, Orjan Frederick, M.A., Assistant Professor of Architecture (1969-1969).
Weyrauch, Walter Otto, J.S.D. (Yale), Professor of Law (1957-1960).

Whang, Choong J., M.D. (Seoul National University), Resident in Neurosurgery (1969-1969).
Wheat, Myron W., Jr., M.D. (Washington U.) Professor of Surgery and Chief of the Division of Thoracic and Cardiovascular Surgery; Director of Professional Services in the Shands Teaching Hospital and Clinics (1959-1968).
Wheaton, Ernest Richard, M.Ag., Interim Assistant Economist, (1960-1965).
Wheaton, Thomas Adair, Ph.D., (California), Assistant Professor (Assistant Horticulturist), IFAS, Citrus Experiment Station (1963-1963).
Wheeler, Lawrence Arthur, Ph.D. (Southern California), Associate Professor of Electrical Engineering (1969-1969).
Wheeler, Willis Boly, Ph.D. (Pennsylvania State), Assistant Professor (Assistant Biochemist), IFAS (1966-1966).
Whitcomb, Carl Erwin, Ph.D. (Iowa State), Assistant Professor (Assistant Ornamental Horticulturist) IFAS (1967-1969).
Whitcomb, Willard Hall, Ph.D. (Cornell), Professor of Entomology (Entomologist), IFAS (1967-1967).
White, Barbara Crittenden, M.E., Chairman and Professor, Department of Physical Therapy, (1958-1969).
White, Clementine Bertha, M.M., Assistant Professor of Music (1966-1966).
White, Franklin Henry, Ph.D. (Illinois), Professor of Veterinary Science (Bacteriologist), Institute of Food and Agricultural Sciences (1955-1967).
White, Jake B., B.S.A., Associate Dairy Husbandman, West Florida Dairy Unit (1941-1944).
White, Joseph Benton, Ph.D. (Peabody), Dean Emeritus, College of Education and Professor of Education (1948-1964).*
White, Lowell E., M.D. (University of Washington), Professor of Surgery and Chief of the Division of Neurosurgery, (1970-1970).
White, Tony Robert, M.A.E., Interim Instructor in Architecture (1969-1969).
Whitehead, Richard Holmes, B.A., Director of Admissions and Registrar (1938-1965).
Whitehurst, Frederick D., Ph.D., (Florida), Assistant Professor of Accounting (1969-1969).
Whiteside, Jack Oliver, Ph.D., (Rhodesia), Associate Professor (Associate Plant Pathologist), IFAS, Citrus Experiment Station (1967-1967).
Whitley, Esstoya Willis, M.A., Instructor, P. K. Yonge Laboratory School (1958-1962).
Whitney, Jodie Doyle, Ph.D., (Oklahoma), Assistant Professor (Assistant Agricultural Engineer), IFAS, Citrus Experiment Station (1965-1965).
Whittaker, Ronald D., Ph.D. (Florida State), Assistant Professor of Journalism and Communications (1969-1969).
Whittemore, Hiram D., (B.S.A.E.), Associate Professor (Associate Agricultural Engineer), IFAS, USDA, Everglades Experiment Station (1958-1958).
Whitty, Elmo Benjamin, Ph.D. (North Carolina State), Assistant Professor of Agronomy, IFAS (1966-1966).
Whorton, James, Ed.D., (Colorado State), Assistant Professor of Education (1969-1969).
Wilcox, Charles Julian, Ph.D. (Rutgers), Associate Professor of Dairy Science and Associate Dairy Geneticist, Agricultural Experiment Stations (1959-1965).
Wilcox, Donald Brooks, LL.B., M.S.M.E., Professor of Industrial and Systems Engineering (1952-1952).
Wilcox, Merril, Ph.D. (North Carolina State), Associate Professor of Agronomy, IFAS (1960-1968).*
Wild, John D., Ph.D. (Chicago), Professor of Philosophy (1969-1969).
Wilder, Buna Joe, M.D. (Duke), Assistant Professor of Medicine (1962-1966).*
Wilder, J. Lloyd, M.D. (Loma Linda University) Clinical Associate in Psychiatry (1968-1968).
Wilensky, Norman Marvin Ph.D. (Yale), Associate Professor of Social Sciences and History (1962-1969).
Wiles, Hilda, B.A., Interim Teacher, P. K. Yonge Laboratory School (1968-1968).
Wilfret, Gary Joe, Ph.D., (Hawaii), Assistant Professor (Assistant Geneticist), IFAS, Gulf Coast Experiment Station (1969-1969).

Wilkinson, Albert H., M.D. (Jefferson Medical College of Pennsylvania), Clinical Assistant Professor of Surgery—JHEP—(1969-1969).
Wilkinson, Clyde Winfield, Ph.D. (Illinois), Professor of English (1959-1959).
Wilkinson, Robert Cleveland, Ph.D. (Wisconsin), Associate Entomologist, Agricultural Experiment Stations (1960-1965).
Wilkowske, Howard Hugh, Ph.D., (Iowa State), Professor (Dairy Technologist) and Assistant Dean for Research, IFAS, (1950-1968).
Willard, Del, M.S., Instructor in Mathematics (1960-1960).
Williams, Aubrey Lake, Ph.D. (Yale), Graduate Research Professor of English (1958-1961).
Williams, Clyde M., M.D. (Baylor), Ph.D. (Oxford), Professor and Chairman, Radiology (1960-1965).
Williams, David Tyndale, Ph.D. (New York), Professor of Aerospace Engineering; Professor of Physics (1957-1957).
Williams, Donald Edward, Ph.D. (Northwestern), Associate Professor of Speech and Director of Rhetoric and Public Address, (1959-1964).
Williams, Emmett Louis, Ph.D. (Peabody), Associate Professor of Education and Assistant Dean, College of Education (1964-1966).
Williams, George J., M.A., Interim Instructor in Social Sciences (1965-1965).
Williams, Herman Barnes, B.M.E., Associate Professor of Engineering Graphics (1946-1947).
Williams, Hiram D., M.Ed., Professor of Art (1960-1968).
Williams, Izola Forrester, M.S., Associate Professor (Associate State Leader, Home Economics), IFAS, (1963-1968).
Williams, Jocie C., M.D. (Bowman Gray), Clinical Fellow in Medicine (1967-1969).
Williams, Joan L., Research Assistant, College of Nursing (1967-1967).
Williams, Mary Cilley, B.A., Assistant Editor, Agricultural Experiment Stations (1961-1962).
Williams, Margaret Ruth, M.A., Chairman and Associate Professor, Department of Medical Technology, (1961-1961).*
Williams, Robert L., M.D. (Albany), Professor of Psychiatry and Chairman of Department (1958-1964).
Williams, William Redden, Ph.D., (North Carolina), Associate Professor of Professional Physical Education (1967-1967).
Williams, Winton E., J.D. (Mississippi), Assistant Professor of Law (1969-1969).
Williamson, Herbert Duff, M.C.E., Associate Professor of Building Construction (1965-1965).
Willis, Richard D., Ph.D. (Illinois), Assistant Professor of Psychology (1969-1969).
Wilmot, David L., M.A., Professor of Music (1962-1968).
Wilmot, William V., Jr., Ph.D. (Wisconsin), Professor of Management and Chairman of Department of Management and Business Law (1957-1964).
Wilson, F.D., Ph.D. (State College of Washington), Assistant Plant Geneticist, USDA, Everglades Experiment Station (1958-1958).
Wilson, Harold Arnold, Ph.D. (Iowa), Associate Professor of Social Sciences and History, Adviser (1958-1967).
Wilson, Henry Russell, Ph.D. (Maryland), Associate Professor of Animal Science; Associate Professor of Poultry Science and Associate Poultry Physiologist, Agricultural Experiment Stations (1962-1967).
Wilson, James H., M.D. (University of Mississippi), Intern of Surgery (1969-1969).
Wilson, Jennet Mae, M.A., Assistant Professor of Nursing (1957-1957).
Wilson, William Curtis, Ph.D., (Florida), Assistant Professor (Assistant Plant Pathologist), IFAS, FCC, Citrus Experiment Station (1966-1966).
Wiltbank, William Joseph, Ph.D. (Florida) Assistant Professor (Assistant Horticulturist) IFAS, (1968-1968).
Wind, Chiel A., M.D. (University of Jerusalem) Resident in Ophthalmology (1968-1968).
Winefordner, James Dudley, Ph.D. (Illinois), Professor of Chemistry (1959-1967).
Winefordner, Laura, B.E., Interim Teacher, P. K. Yonge Laboratory School (1967-1967).
Wing, Alexander Holbrook, Ph.D. (Columbia), Professor of Electrical Engineering (1955-1955).*

Wing, Elizabeth S., Ph.D. (Florida), Assistant Curator, Florida State Museum and Interim Assistant Professor of Zoology (1961-1968).
Wing, James Marvin, Ph.D. (Iowa State), Professor of Dairy Sciences and Dairy Husbandman, Agricultural Experiment Station (1951-1966).*
Winius, George Davison, Ph.D. (Columbia), Associate Professor of History (1965-1969).
Winkler, Wendy A., B.S., Interim Instructor in Journalism and Communications (1969-1969).
Winsor, Herbert Williams, B.S.A., Assistant Chemist, Agricultural Experiment Stations (1930-1930).
Winstead, Walter Gerald, M.A., Assistant Director of Purchasing (1965-1966).
Winter, Laura, M.A., Interim Instructor of Speech (1968-1968).
Wirth, Willis Wagner, Ph.D. (Calif.), Professor of Entomology (1965-1965).
Wisler, Patricia Margaret, M.A., Research Assistant in Obstetrics and Gynecology (1965-1965).
Wittig, Heinz Joseph, M.D. (Munich) Associate Professor of Pediatrics (1968-1968).
Wittig, John William, M.A., Instructor of Speech and Director of Forensics (1967-1967).
Wittmer, P. Joseph, Ph.D. (University of Indiana), Assistant Professor of Education (1968-1968).
Wolfe, Emil Andrew, M.S., Professor (Horticulturist), IFAS, Everglades Experiment Station (1948-1966).
Wolfenbarger, Daniel Otis, Ph.D. (Cornell), Entomologist, Sub-Tropical Experiment Station (1945-1946).
Wolff, George Elliott, Ph.D. (North Carolina), Professor of Social Sciences, Adviser (1948-1969).*
Wolford, Richard Wilson, M.A., Associate Professor (Associate Chemist), IFAS, Citrus Experiment Station (1951-1951).
Wolfson, Morton, M.Ed., Assistant Professor of Comprehensive Logic, Adviser (1965-1968).
Wolfson, S. L., M.D., Clinical Associate in Pediatrics (1965-1965).
Wolking, William, Ph.D. (University of Minnesota), Associate Professor of Education (1968-1968).*
Woltz, Shreve Simpson, Ph.D., (Rutgers), Professor (Plant Physiologist), IFAS, Gulf Coast Experiment Station (1953-1968).
Wood, Frank Bradshaw, Ph.D. (Princeton), Professor of Astronomy; Director of Optical Observatories (1968-1968).
Wood, Thomas O., M.D. (University of Tennessee), Postdoctoral Fellow in Ophthalmology (1969-1969).
Woodard, James C., D.V.M., (Illinois), Assistant Professor in Pathology (1965-1966).
Woodruff, Robert Eugene, Ph.D. (Florida), Assistant Professor of Entomology (1966-1968).
Woodruff, William, Ph.D. (Nottingham, England), Graduate Research Professor of Economic History and Professor of Economics (1966-1968).
Woods, Charles Truman, Jr., M.A., Assistant Editor, Agricultural Experiment Station (1966-1968).
Woodward, Edward R., M.D. (Chicago), Professor of Surgery and Chairman of Department (1957-1957).
Woodward, James C., D.V.M. (Auburn), Postdoctoral Fellow (1958-1965).
Workman, Ralph B., Jr., Ph.D., (Oregon), Associate Professor (Associate Entomologist), IFAS, Potato Investigations Laboratory (1958-1967).
Worthen, David M., M.D., (University of Minnesota), Assistant Professor of Ophthalmology (1970-1970).
Wroe, Martha, M.A., Assistant Professor of Physical Therapy; Director of Physical Therapy, (1959-1966).
Wyatt, John Walton, S.J.D. (George Washington), Professor of Business Law (1948-1956).
Wynne, James W., M.D. (Cornell), Intern in Medicine (1969-1969).
Yates, Edward D., M.A., Assistant Professor of Journalism and Communications (1965-1966).

Yates, Harry Edgar, Assistant Professor (Assistant Meteorologist), IFAS, USWB, Weather Forecasting Service (1954-1954).
Yen, Alice Bing, M.S.L.S., Assistant Librarian, Catalog (1966-1966).
Yii, Roland, Ph.D. (Pennsylvania), Professor of Electrical Engineering; Professor-in-Charge, GENESYS—West Palm Beach (1968-1969).
Yoho, William Herbert, M.S., Assistant Professor of Physical Sciences and Geology (1951-1951).
York, E. T., Jr., Ph.D. (Cornell), Provost and Professor of International Agriculture, Institute of Food and Aricultural Sciences (1963-1963).
Yorton, Joan Bannister, Ph.D. (Florida), Interim Instructor in Physical Sciences (1967-1967).
Yorton, Roger Allan, B.S., Engineering Assistant in Environmental Engineering (1966-1966).
Young, Canning K. M., M.A.F.A., Professor of Architecture (1955-1969).
Young, Fred Olan, M.A., Interim Instructor of Education (1966-1966).
Young, Gertrude Marian, Ed.D. (Columbia), Associate Professor of Education (1957-1957).
Young, Harold William, Ph.D., (Ohio State), Associate Professor (Associate Horticulturist) and Head, IFAS, Big Bend Horticultural Laboratory (1958-1963).
Young, Thomas Wilbur, Ph.D. (Cornell), Horticulturist, Sub-Tropical Experiment Station (1942-1958).*
Youngs, Marian Amelia, M.A. in L.S., Assistant Librarian, Catalog, and Assistant Professor of Library Science (1934-1949).*
Yozgatlioglu, Cuneyt A., M.D. (Istanbul), University Psychiatrist, Student Health Service (1963-1963).
Yu, Shih Cheng, Ph.D. (Iowa), Professor of Accounting (1967-1968).
Yuan, Tzu, Liang, Ph.D. (Ohio State), Associate Chemist, Agricultural Experiment Stations (1955-1964).
Zam, Stephen G. III, Ph.D. (University of Southern California, Los Angeles), Assistant Professor, Biological Sciences (Zoology) (1966-1966).
Zauner, Christian Walter, Ph.D. (Southern Illinois), Associate Professor of Professional Physical Education (1965-1965).
Zeigler, Claude Dawson, Jr., M.S.B.C., Assistant Professor of Building Construction (1960-1964).
Zeitler, Ronald G., M.D. (Washington U.) Clinical Associate in Psychiatry (1966-1966).
Zeman, Joseph Jay, Ph.D. (Chicago), Assistant Professor of Philosophy (1966-1966).
Zetrouer, Wallace Feaster, M.S.E., Assistant Professor of Electrical Engineering (1943-1956).
Zettler, Francis William, Ph.D. (Cornell) Assistant Professor (Assistant Plant Pathologist) Institute of Food and Agricultural Sciences (1966-1966).
Ziegler, Louis William, Ph.D. (Florida) Professor, IFAS, (1930-1958).
Zimmerman, Irene, Ph.D. (Michigan), Associate Librarian, Reference and Bibliography (1951-1962).
Zimmerman, Leland L., Ph.D. (Wisconsin), Professor of Speech and Director of Theatre (1955-1968).
Zimpfer, Walter Henry, M.S., Associate Professor of Civil Engineering (1950-1956).*
Zitter, Thomas Andrew, Ph.D., (Michigan State), Assistant Professor (Assistant Plant Pathologist), IFAS, Everglades Experiment Station (1968-1968).
Zoltewicz, John Andrew, Ph.D. (Princeton), Associate Professor of Chemistry (1963-1969).
Zubero, Jose L., M.D. (Zaragoza U., Spain) Clinical Associate in Ophthalmology (1966-1966).
Zue, Victor Waito, M.S.E., Assistant in Research in Electrical Engineering (1969-1969).
Zumbro, James Mark, M.M., Assistant Professor of Music, (1969-1969).
Zweig, Marilyn B., Ph.D. (University of Rochester), Assistant Professor of Philosophy (1966-1966).

UNIVERSITY OF FLORIDA
AGRICULTURAL EXTENSION SERVICE
COUNTY AND HOME ECONOMICS AGENTS
1969-70

Ahrano, Elizabeth Cermak, B.S.H.E., Extension Home Economics Agent (I), Alachua County, (1957-1957).

Allen, Edward, M.S., Extension Agent, Ornamentals, Multi-County (III), (1960-1969).

Allen, Jeanne Marian, B.S., Extension Home Economics Agent (II), Sumter County, (1969-1969).

Alphonse, Sandra Taylor, B.S., Extension Home Economics Agent, 4-H (I), Broward County, (1966-1966).

Anderson, Mae Millar, B.S., Extension Home Economics Agent (II), Madison County, (1963-1963).

Anderson, Mary Ethel, B.S., Extension Home Economics Agent (I), Escambia County (1969-1969).

Andrews, Adam Tucker, M.Ag., Extension Agent, Agriculture (II), Alachua County, (1954-1969).

Andrews, Rance Adams, B.S.A., County Extension Director (II), Hamilton County, (1953-1955).

Barmby, Bruce Alan, M.S., Extension Agent, Ornamentals & Vegetables (III), Orange County, (1958-1969).*

Bass, Bernice Odell, M.S.A., County Extension Director (II), Glades County, (1956-1959).

Bass, Jack Wesley, M.Ag., Extension Agent, Indian Work (II), (1965-1969).

Bassett, Mamie Goins, B.S.H.E., Extension Home Economics Agent (III), Hillsborough County, (1955-1969)*.

Beem, Jean, M.S.A., County Extension Director (IV), Hillsborough County, (1948-1969).

Bellizio, James Ernest, M.S., Extension Agent, Horticulture, (I), Collier County, (1968-1968).

Benson, Jacquelyn Flynt, B.S., Extension Home Economics Agent (I), Duval County, (1966-1966).

Bentley, Dicki Dresbach, B.S., County Extension Home Economics Agent—4-H (I), Gadsen County, (1966-1966).

Birrel, Aurilla Driggers, B.S.H.E., Extension Home Economics Agent (II), Brevard County, (1969-1969).

Bizette, Justine Lambert, B.S.H.E., Extension Home Economics Agent—4-H—(II), Dade County, (1961-1969).

Blackburn, Alice Marie, M.Ret., Extension Home Economics Agent—4-H (I), Lake County, (1968-1968).

Blake, Jr., James Aloysius, B.S.A., Extension Agent, Citrus Multi. County (I), (1969-1969).

Boatright, JoAnn Kirkland, B.S., Extension Home Economics Agent (II), Suwannee County, (1966-1966).

Bouie, Dorothy Ann, B.S., Extension Home Economics Agent (I), Volusia County, (1968-1968).

Boulware, Deborah Ricketts, M.S., Extension Home Economics Agent (II), Lake County, (1966-1969).

Boyles, Clifford Raymond, County Extension Director (II), Okeechobee County, (1944-1944).

Braddock, Thomas Hansen, M.S.A., Extension Agent, Dairy & Livestock, Multi. County, (III), (1957-1969).

Bradley, Richard Leonard, B.S.A., Extension Agent (I), Sumter County, (1945-1963).

Brazell, Susan Kirstein, B.A., Extension Home Economics Agent (I), Duval County, (1967-1967).

Breeland, Clifton Hughey, B.S., Extension Agent—4-H—(I), Escambia County, (1969-1969).

Brock, Marguerite Rish, B.S.H.E., Extension Home Economics Agent (II), St. Lucie County, (1946-1962).*
Brown, Nettie Ruth, B.S.H.E., Extension Home Economics Agent (III), St. Johns County, (1960-1969).
Burgess, Jane Randal, B.S.H.E., Extension Home Economics Agent (II), Jackson County, (1954-1969).
Burgess, Raymond Hunter, M.S.A., County Extension Director (III), Hendry County, (1962-1969).
Cameron, Josephine Moore, M.Ag., Extension Home Economics Agent (III), Polk County, (1953-1969).*
Campbell, John Douglas, B.S.A., County Extension Director (III), Dade County, (1947-1969).
Canty, Bessie Jackson, M.S., Extension Home Economics Agent (II), Duval County, (1963-1969).
Carmichael, Ortis Eugene, M.S., Extension Agent, Ornamentals (I), Polk County, (1968-1968).
Carr, Horace Mixon, B.S.A., County Extension Director (II), Bay County, (1951-1951).
Causey, John Hjalmar, B.S.A., Extension Agent, Vegetables & Sugar Cane (III), Palm Beach County, (1948-1969).
Champagne, Roy Jean, M.S., Extension Agent—Poultry (III), Dade County, (1953-1969).
Chandler, Isaac, Jr., B.S., Extension Agent—Agriculture (I), Hamilton County, (1952-1963).
Childers, Sallie Russell, B.S., Extension Home Economics Agent (II), Holmes County, (1954-1954).
Clark, Bernard Hentz, B.S.A., Extension Agent—Livestock (II), Gadsden County, (1948-1969).
Clark, Elizabeth Davis, B.S., Extension Home Economics Agent (II), Dade County, (1965-1969).
Clark, Kenneth Ames, B.S.A., County Extension Director (III), Sarasota County, (1942-1969).
Clark, Virginia Carr, B.S.H.E., Extension Home Economics Agent (II), Walton County, (1953-1960).*
Classon, Dorothy Jacobson, B.S., Extension Home Economics Agent (III), Lee County, (1959-1969).
Clay, Ralph Thomas, B.S.A., County Extension Director (III), Putnam County, (1949-1969).
Cobb, Leonard Clarence, M.Ag., County Extension Director (III), Levy County (1951-1969).
Collins, Leala Reaves, B.S., Extension Home Economics Agent (II), Orange County, (1953-1969).
Collins, William Earl, B.S.A., Extension Agent—Livestock Multi-County (I), (1951-1963).
Coombs, Virginia Hill, B.S., Extension Home Economics Agent—4-H (II), Hillsborough County, (1954-1969).
Cowen, Edward James, M.Ag., County Extension Director (II), Dixie County, (1955-1959).
Cowen, Ernest Henry, B.S., Extension Agent—4-H (I), Orange County, (1966-1966).
Cowen, William Joshua, B.S.A., County Extension Director (II), Union County, (1946-1948).
Creel, Meredith Ann, B.S.H.E., Extension Home Economics Agent—4-H (I), Suwannee County, (1969-1969).
Crews, Julius Paul, B.S.A., County Extension Director (III), Suwanee County, (1953-1969).
Cummings, James Frederick, M.Ag., Extension Agent (II), Broward County, (1961-1969).
Cunningham, Dorothy C., B.S.H.E., Extension Home Economics Agent—4-H (I), Escambia County, (1966-1966).
Curtis, Robert George, B.S.A., County Extension Director (II), Lee County, (1952-1963).

Daigle, Louis John, M.Ag., Extension Agent—Ornamentals (II), Dade County, (1960-1969).
Dalton, Joseph David, Ph.D. (University of Massachusetts), Extension Agent—Soils (III), (1961-1969).
Davis, Henry Pittman, B.S.A., County Extension Director (II), Taylor County, (1950-1954).
Davis, Johnnie Everette, M.Ag., County Extension Director (III), Washington County, (1948-1969).
Davis, Robert Marion, M.Ag., County Extension Director (III), Polk County, (1960-1969).
Davis, Runnette Hitchcock, M.A., Extension Home Economics Agent (II), Dade County, (1968-1968).
Dawsey, Postelle Gilpin, B.S., Extension Home Economics Agent (III), Marion County, (1957-1969).
Dawson, Albert Douglas, B.S.A., Extension Agent—Livestock (II), Pasco County, (1966-1969).
DeMaree, Michael F., M.S.A., Extension Agent—4-H (I), Leon County, (1969-1969).
DeVoll, David Allyn, M.S.A., Acting Extension Agent—Vegetables Multi-County (I), (1968-1968).
Dickinson, Ronald Irvin, M.S., Extension Agent—Ornamentals (I), Manatee County, (1969-1969).
Dilbeck, James David, M.S., Extension Agent—Vegetables Multi-County (I), (1969-1969).
Dinkins, Paul LeRoy, M.Ag., County Extension Director (III), St. Johns County, (1956-1969).
Dixon, Barmell Bledsoe, B.S.H.E., Extension Home Economics Agent (II), Hernando County, (1963-1963).
Dorsey, Mable Strong, B.S., Extension Home Economics Agent (I), Alachua County, (1968-1968).
Downs, Robert Donald, B.S.A., Extension Agent—Vegetables (II), Hillsborough County, (1957-1969).
Draves, Dorothy Engle, B.S.H.E., Extension Home Economics Agent (III), Pinellas County, (1962-1969).
Dukes, Neil Matthew, B.S., County Extension Director (III), Columbia County, (1952-1969).
Dunson, Anne St. Amant, B.S., Extension Home Economics Agent—4-H (I), Putnam County, (1964-1964).
Durden, Bobby Ray, B.S.A., County Extension Director (II), Wakulla County, (1961-1968).
Durre, Nolan Loyd, M.S., Extension Agent—Vegetables (III), Dade County (1952-1969).
Eby, Edna Sims, B.S.H.E., Extension Home Economics Agent—(III), Volusia County, (1943-1969).
Elkins, Ruth McKeown, B.S.H.E., Extension Home Economics Agent (III), Polk County, (1942-1969).
Elmore, Annie Sue, M.S., Extension Home Economics Agent (II), Washington County, (1960-1960).
Estes, James Barry, M.Ag., County Extension Director (III), Franklin County, (1958-1969).
Farrell, Wilburn Carlos, M.A., County Extension Director (III), Alachua County, (1951-1969).
Flannery, Virginia Wood, B.S.H.E., Extension Home Economics Agent (I), Duval County, (1962-1962).
Flewellen, Robert Franklin, B.S.A., Extension Agent (I), Holmes County, (1968-1968).
Fulmer, Judson Todd, M.Ed., County Extension Director (II), Nassau County, (1957-1966).*
Furr, Elisabeth Brown, B.A., Extension Home Economics Agent (II), Manatee County, (1957-1968).
Gardner, Virginia Dickens, B.S.H.E., Extension Home Economics Agent (I), Pinellas County, (1951-1963).

George, Donald Atkinson, B.S.A., County Extension Director (II), Sumter County, (1954-1960).
Gifford, Dorothy Young, B.S., Extension Home Economics Agent (II), Broward County, (1962-1967).*
Glasscock, Paul Edwin, B.S., Extension Agent—Dairying (II), Hillsborough County, (1957-1969).
Glenn, Woodrow Wilson, M.Ag., County Extension Director (II), Jackson County, (1944-1944).
Glisson, James Milton, B.S.A., Extension Agent—4-H & Agriculture (II), Marion County, (1966-1969).
Godbold, Thomas Jesse, B.S.A., County Extension Director (II), Liberty County, (1963-1969).
Goldweber, Seymour, B.S., Extension Agent—Fruit Crops Multi County (III), (1960-1969).
Greene, English Major, B.S.A., Extension Agent—Agriculture (I), Alachua County, (1945-1963).
Gregory, Marjorie Butler, B.S.H.E., Extension Home Economics Agent (III), Gadsden County, (1952-1969).
Griffis, Raleigh Sidney, M.Ag., Extension Agent—Vegetables & Flowers (II), Palm Beach County, (1949-1969).*
Haddox, Jackson Alexander, M.Ag., County Extension Director (III), Lake County, (1951-1969).
Halusky, Marilyn Jean, B.S., Extension Home Economics Agent (I), Wakulla County, (1969-1969).
Hamrick, Oliver Rudolph, M.Ag., County Extension Director (IV), Madison County, (1950-1969).
Harper, Emily Garmany, B.S., Extension Home Economics Agent (II), Columbia County, (1966-1966).
Harrell, Aubrey Luther, M.Ag., County Extension Director (II), Baker County, (1950-1952).
Harris, Bert Jerome, B.S.A., County Extension Director (III), Highlands County, (1948-1969).
Hatcher, William Lester, B.S.A., County Extension Director (II), Charlotte County, (1954-1957).
Hayman, Jack Carlton, M.Ag., County Extension Director (III), Hardee County, (1953-1969).
Hebert, Oscar Joseph, Jr., M.S., Extension Agent—Livestock Multi-County (II), (1967-1969).
Hicks, Roberta Cherry, B.S., Extension Home Economics Agent (II), Baker County, (1960-1960).
Holmes, Mary Alyce, M.S., Extension Home Economics Agent (I), Dade County, (1966-1966).
Hoopfer, Leah Belle, B.S., Extension Home Economics Agent (I), Pinellas County, (1969-1969).
Hunt, Richard Michael, B.S.A., Extension Agent—Marketing (II), Dade County, (1964-1969).
Huggins, George Thomas, B.S.A., County Extension Director (II), Bradford County, (1941-1969).
Hurner, George Timothy, Jr., B.S.A., Extension Agent—Citrus (I), Highlands County, (1965-1965).
Jackson, Eliza Moxley, B.S.H.E., County Extension Home Economics Agent (II), Bay County, (1962-1962).
Jackson, Jr., John Leslie, M.Ag., Extension Agent—Citrus Multi-County (I), (1968-1969).
Jasa, Frank Joseph, B.S.A., County Extension Director (II), Seminole, (1957-1969).
Jeter, Ann Pierce, B.S., Extension Home Economics Agent (III), Okaloosa County, (1956-1969).
Johnson, Levi Mott, B.S.A., County Extension Director—Horticulture (II), Martin County, (1944-1944).
Jones, Arlen Cunningham, B.S.H.E., Extension Home Economics Agent (II), Palm Beach County, (1963-1969).

Jones, Deloris Mae, B.S., Extension Home Economics Agent (II), Madison County, (1960-1969).
Jones, Robert Mack, M.S., Extension Agent—Farm Management (II), Lake County, (1967-1969).
Jones, Sandra Ray, B.S., Extension Home Economics Agent (II), Nassau County, (1965-1969).
Jones, Thomas Leslie, M.Ed., Extension Agent (I), Broward County, (1969-1969).
Jordan, Donald Feagin, M.A., County Extension Director (II), Flagler County, (1961-1965).
Jorgensen, Milford Christen, M.Ag., Extension Agent—Ornamental Horticulture (III), Hillsborough Conuty, (1954-1969).
Kersey, Alice Page, M.S., Extension Agent—4-H (I), Polk County, (1967-1967).
Killebrew, Connie Shuler, B.S., Extension Home Economics Agent—Indian Work (II), (1969-1969).
Laird, Cubie Revonie, M.Ed., County Extension Director (III), Gulf County, (1945-1969).
Lander, Donald Wilson, M.A., County Extension Director (III), Collier County, (1950-1969).
Landfair, Ellen, B.S., Extension Home Economics Agent (II), Highlands County, (1968-1968).
Little, Edna Smart, B.S., Extension Home Economics Agent (II), Hillsborough County, (1963-1969).
Llewellyn, William Robert, M.S.A., Extension Agent—Vegetables Multi-County (I), (1954-1965).*
Loadholtz, Larry Lewis, B.S.A., Extension Agent —Ornamentals & 4-H (II), Volusia County, (1961-1969).
Loadholtz, Joseph Lowell, B.S., County Extension Director (II), Escambia County, (1961-1968).
Loeppert, Richard Henry, Jr., B.S., Extension Agent—4-H (I), Jackson County, (1966-1966).
Long, Louise, B.S.H.E., Extension Home Economics Agent (II), Seminole County, (1968-1968).
Love, Catherine Haynes, M.A., Extension Home Economics Agent (III), Sarasota County, (1960-1969).
Luman, Linda Whittle, B.S., Extension Home Economics Agent—4-H (I), Orange County, (1968-1968).
Martin, Gerald Grey, M.S., Extension Agent—Dairy Multi-County (I), (1966-1966).
McCall, Emmett Dehyrl, B.S.A.E., County Extension Director (II), Clay County, (1942-1942).
McCain, Martha Sue, B.S., Extension Home Economics Agent (II), Bradford County, (1965-1965).
McCormick, Marianne, B.S., Extension Home Economics Agent (I), Liberty County, (1968-1968).
McCullars, Forrest Noble, B.S.A., County Extension Director—Agriculture (II), Indian River County, (1953-1955).
McNutt, Jr., Rollin Harris, B.S.A., County Extension Director (III), Manatee County, (1961-1969).
Meadows, Jeanette, B.S.H.E., Extension Home Economics Agent (II), Jefferson County, (1963-1965).
Meares, Cora Hargrave, B.S., Extension Home Economics Agent (II), Marion County, (1960-1969).
Medlin, Quentin, B.S.A., County Extension Director (II), Citrus County, (1947-1950).
Melton, Frank Mayer, M.S., Extension Agent—4-H & Horticulture (I), Sarasota County, (1967-1967).
Miller, James Charles, B.S., Extension Agent—4-H (II), Madison County, (1944-1969).
Miller, Ruth Ann, B.S., Extension Home Economics Agent (I), Polk County, (1969-1969).
Mills, Nellie Daughtry, B.S., Extension Home Economics Agent (III), Duval County, (1948-1969).

Montgomery, Robert Terrence, B.S.A., Extension Agent—4-H (I), Manatee County, (1968-1968).
Moore, Mary Allen, M.A.T., Extension Home Economics Agent (III), Orange County, (1954-1969).
Moore, Philip Bartley, M.A.T., Extension Agent—Ornamentals (I), Palm Beach County, (1969-1969).
Moore, Ralph William, B.S., Extension Agent—Communications & 4-H (II), Dade County, (1967-1969).
Moser, John Eugene, B.S., Extension Agent—4-H & Livestock (I), Dixie-Gilchrist Counties, (1969-1969).
Nix, Fern Sulphin, B.S.H.E., Extension Home Economics Agent (II), Santa Rosa County, (1954-1954).
Nix, Ronald Rhodes, M.S., Extension Agent—Agriculture (I), Columbia County, (1969-1969).
Norton, Martha Burdine, M.S.H.E., Extension Home Economics Agent (II), Martin County, (1952-1956).
Odom, Albert Hill, M.S.A., County Extension Director (II), Jefferson County, (1947-1951).
O'Quinn, Clarence Fentress, B.S.A., Extension Agent—Poultry (II), Hillsborough County, (1954-1969).
Oswalt, Thomas William, M.S.A., Extension Agent—Citrus (III), Polk County, (1963-1969).
Owens, George Maxwell, M.Ag., County Extension Director (II), Hernando County, (1956-1965).
Oxford, James Thomas, B.S.A., County Extension Director (III), Brevard County, (1942-1969).
Parramore, Ann Wood, B.A., Extension Home Economics Agent (II), Leon County, (1967-1967).
Pastorius, Edwin Stanton, B.S., Extension Agent—Ornamental Horticulture (II), Sarasota County, (1958-1969).
Patten, Jack Dowdell, B.S.A., County Extension Director (III), Okaloosa County, (1955-1969).
Paulk, Harvey Timothy, M.Ag., County Extension Director (III), Calhoun County, (1956-1969).
Perry, Irving McVae, B.S., Extension Agent—Ornamentals (I), Pinellas County, (1969-1969).
Phillips, Jr., James Oliver, M.S., Extension Agent—Farm Management (I), Polk County, (1969-1969).
Phillips, William Joseph, Jr., M.S., Extension Agent—Horticulture Multi-County (II), (1967-1969).
Price, Rayburn Kenneth, M.Ag., Extension Agent—Dairy Multi-County (III), (1952-1969).
Pryor, Robert Sheperd, B.S., County Extension Director (III), Palm Beach County, (1946-1969).
Rhoden, James Lloyd, M.Ag., County Extension Director (III), Leon County, (1946-1969).
Richards, James Edward, M.S.A., Extension Agent—Citrus (I), Hillsborough County, (1969-1969).
Ritenburgh, Imogene Dallas, B.S.H.E., Extension Home Economics Agent (II), Clay County, (1964-1964).
Robertson, Edwena Jeanette, B.S.H.E., Extension Home Economics Agent (III), Escambia County, (1954-1969).
Robinson, Jr., William L., M.E., Extension Agent (I), Leon County, (1969-1969).
Roe, Mary Ann, B.S., Extension Home Economics Agent (II), DeSoto County, (1967-1967).
Rose, Sylvester Alexander, M.S., Extension Agent—Ornamentals (III), Brevard County, (1956-1969).*
Rowan, Charles Edison, M.Ag., Extension Agent—4-H & Agriculture (II), Pinellas County, (1954-1969).*
Rowan, Edsel Wright, B.S.A., County Extension Director (III), Marion County, (1950-1969).
Rozar, Luther Lynson, M.Ag., County Extension Director—Agriculture (III), Pasco County, (1958-1969).

Russell, John Coleman, M.Ag., County Extension Director (III), Gadsden County, (1952-1969).
Sanders, Kenneth Michael, M.S., County Extension Director (II), DeSoto County, (1969-1969).
Satcher, Joy Wren, B.S., Extension Home Economics Agent (I), Brevard County, (1966-1966).
Scarborough, Jerry Charles, B.S., Extension Agent—RAD & Livestock (I), Suwannee County, (1969-1969).
Scott, Lenzy Maurice, M.Ag., Extension Agent—Beef Cattle Multi-County (II), (1955-1969).
Shafer, Ronald George, B.S., Extension Agent—Livestock (I), Lee County, (1967-1967).
Shirar, Marylou Waymire, B.S., Extension Home Economics Agent—4-H (II), Palm Beach County, (1959-1969).*
Simmons, Lillian Blondin, B.S.H.E., Extension Home Economics Agent (II), Levy County, (1965-1965).
Simpson, Victoria Magaline, B.S., Extension Home Economics Agent (I), Dade County, (1949-1963).
Smith, Clara Ann, B.S., Extension Home Economics Agent (II), Pasco County, (1963-1963).
Smith, Eugene Patrick, B.S.A., Extension Agent—Agriculture (I), Marion County, (1940-1963).
Smith, James Blanchard, B.S.A., County Extension Director (III), Osceola County, (1950-1969).
Smith, William Carlton, M.Ag., County Extension Director (II), Lafayette County, (1957-1965).
Solger, David Merritt, M.Ag., Extension Agent—Dairying & Poultry (II), Polk County, (1962-1969).
Spears, Pack James, B.S.A., Extension Agent—Agriculture (II), Santa Rosa County, (1965-1969).
Stanley, Paula Paris, B.S., Extension Home Economics Agent (II), Citrus County, (1964-1964).
Stephens, Russell Hampton, B.S., Extension Agent (I), Gadsden County, (1940-1963).
Summer, Sidney Lanier, M.S., Extension Agent—Beef Cattle (III), Polk County, (1965-1969).
Swanson, Henry Frederick, M.S.A., County Extension Director (IV), Orange County, (1948-1969).
Tamburo, Jr., Salvatore Ammual, Ph.D., (West Virginia), Extension Agent—Horticulture (II), Orange County, (1966-1969).
Tankersley, Marilee Mangrum, B.S., Extension Home Economics Agent—4-H (I), Okaloosa County, (1969-1969).
Taranto, Antionette Fichtner, B.S., Extension Home Economics Agent (II), Franklin County, (1965-1966).
Tate, Mary Ellen, B.S., Extension Home Economics Agent—4-H (I), Pasco County, (1968-1968).
Taylor, Bobby Lee, M.Ag., Extension (II), Bradford County, (1963-1969).
Taylor, Lawrence Dennis, M.Ag., County Extension Director (II), Holmes County, (1954-1958).
Thomas, Sarah Kyler, B.S., Extension Home Economics Agent (II), Marion County, (1954-1969).
Thomaston, James Edsel, M.Ag., County Extension Director (III), Walton County, (1954-1969).
Thompson, Essie Hogan, B.S.H.E., Extension Home Economics Agent (II), Putnam County, (1961-1963).
Thompson, Ethel Paschall, B.S., Extension Home Economics Agent (II), Taylor County, (1957-1957).
Tileston, Marilyn Dietrich, B.S., Extension Home Economics Agent (II), Osceola County, (1956-1956).*
Titus, Joan Beasley, B.S.H.E., Extension Home Economics Agent (II), Volusia County, (1968-1969).
Towers, Dorothy Agnes, B.S., Extension Home Economics Agent (I), Dade County, (1969-1969).

Townsend, Dallas Barton, B.S.A., Extension Agent—4-H & Livestock (I), Collier County, (1965-1965).
Townsend, Thomas Ralph, M.Ag., County Extension Director—Agriculture (III), Volusia County, (1948-1969).
Valentine, Marian Bullard, B.S.H.E., Extension Home Economics Agent (III), Lake County, (1954-1969).
Vernon, Betty Martin, B.S.H.E., Extension Home Economics Agent (II), Leon County, (1969-1969).
Wade, Wayne Theodore, M.Ed., Extension Agent—Beef (II), Hillsborough County, (1961-1969).
Walker, James Henry, M.S.A., Extension Agent—Soils & Agronomy (II), Escambia County, (1949-1969).
Walthall, Charles Middleton, M.S., Extension Agent—Beef Cattle Multi-County (II), (1966-1969).
Watson, James Nichols, B.S.A., County Extension Director (III), Duval County, (1946-1969).
Watson, Lewis Elbyrne, M.Ag., County Extension Director (III), Broward County, (1955-1969).*
Webb, Helen Parke, B.S.H.E., Extension Home Economics Agent (II), Hillsborough County, (1963-1969).
Whelchel, Hugh Calvin, B.A., County Extension Director (III), St. Lucie County, (1956-1969).
Whigham, Nancy Brightman, B.S.H.E., Extension Home Economics Agent (II), Pinellas County, (1962-1962).
White, Wylma Blodgett, M.S.H.E., Extension Home Economics Agent (II), Hamilton County, (1955-1955).
Whitton, Gilbert Marshall, M.Ag., County Extension Director (III), Pinellas County, (1957-1969).
Whitty, Robert Bezelle, B.S.A., Extension Agent—4-H & Agriculture (I), Suwannee County, (1965-1965).
Williams, Marjorie Ludeman, B.S.H.E., Extension Home Economics Agent (III), Orange County, (1952-1969).
Williams, Royce Cecil, M.S., Extension Agent—Horticulture (II), Lake County, (1961-1969).
Williams, Ursula Hicks, B.S., Extension Home Economics Agent (II), Gadsden County, (1951-1969).
Wilson, Bobby Winford, B.S., Extension Agent—Horticulture Multi-County (I), (1969-1969).
Wisener, Ronald Lee, M.Ed., Extension Agent—4-H (I), Duval County, (1969-1969).
Womble, William Robert, B.S.A., Extension Agent—Agriculture & 4-H (I), Levy County, (1966-1966).
Wyrick, Jerry Allen, M.S., Extension Agent—4-H (I), Calhoun County, (1967-1967).
Yelvington, James Russell, M.Ag., County Extension Director (III), Gilchrist County, (1952-1969).
Young, Sue Bettersworth, B.S., Extension Home Economics Agent (III), Brevard County, (1953-1969).
Zorn, William Carlton, M.Ag., County Extension Director (II), Santa Rosa County, (1949-1953).

MEMBERS OF THE FACULTY WHO RETIRED SINCE JULY, 1968 AND THOSE WITH EMERITUS STATUS

Abbott, Ouida Davis, Ph.D. (Missouri), Home Economist Emeritus, Food Technology and Nutrition, Agricultural Experiment Stations (1958).
Albertson, Rachel, B.A., Editor, College of Engineering (November 30, 1969).
Allison, Robert Verrill, Ph.D. (Rutgers), Fiber Technologist Emeritus, Everglades Experiment Station (1965).
Alston, Clifford, M.S., Agricultural Economist, IFAS, (1956-1969).
Arnold, Lillian E., M.S., Associate Botanist Emeritus, Plant Pathology, Agricultural Experiment Stations (1958).
Arnold, P. T. Dix, M.S.A., Associate Professor Emeritus of Dairy Husbandry and Associate Dairy Husbandman, Agricultural Experiment Stations (1959).
Bachman, Harold Burton, B.S., Professor Emeritus of Music (1961).
Bannister, Turpin Chambers, Ph.D. (Harvard), D.F.A. (Denison), Professor of Architecture and Dean Emeritus of the College of Architecture and Fine Arts (1966).
Baughan, Denver Ewing, Ph.D. (Yale), Professor Emeritus of English (1967).
Bault, Roger Quincy, M.A., Assistant Professor Emeritus of Physical Sciences (1966).
Beaty, Robert Colder, L.H.D., M.A., (University of Florida), Dean of Students Emeritus (1960).
Beckenbach, Joseph Riley, Ph.D. (Rutgers), Director Emeritus, Agricultural Experiment Stations (1967).
Becker, Raymond Brown, Ph.D. (Minnesota), Professor Emeritus of Dairy Science; Dairy Husbandman Emeritus, Agricultural Experiment Stations (1963).
Beisler, Walter Herman, D.Sc. (Princeton), Professor Emeritus of Chemical Engineering (1965).
Black, Alvin Percy, Ph.D. (Iowa), Research Professor Emeritus of Chemistry; Professor Emeritus of Environmental Science (1966).
Blackmon, Gulie Hargrove, M.S.A., Horticulturist Emeritus, Agricultural Experiment Stations (1954).
Block, Herman Henry, C.E., Professor Emeritus of Building Construction and Chairman of Department (1963).
Bourke, Norman, M.E., Professor Emeritus of Mechanical Engineering (1960).
Bristol, Loris Rood, M.A., Assistant Professor of Education (1969).
Browne, Eleanor Bode, Ph.D., (Ohio State), Professor of Education, (1969).
Brunet, Joseph, Ph.D (Stanford), Professor Emeritus of Classical Languages (1967).
Camp, Arthur Forrest, Ph.D. (Washington), Vice Director Emeritus, Citrus Experiment Station (1956).
Carleton, William Graves, J.D., M.A., Professor Emeritus of History and Political Science (1961).
Carroll, William Richard. Ph.D. (Minnesota), Professor Emeritus of Bacteriology (1966).
Carver, William Angus, Ph.D. (Iowa State), Professor Emeritus of Agronomy, IFAS (1964).
Christie, Jesse Roy, Ph.D. (George Washington), Nematologist Emeritus, Agricultural Experiment Stations (1960).
Constans, Henry Philip, LL.B., M.A. (University of Iowa), Professor Emeritus of Speech (1965).
Cooper, John Francis, M.S.A., Editor and Head of Editorial Department, Agricultural Experiment Stations and Agricultural Extension Service; Professor Emeritus (1961).
Creighton, John Thomas, Ph.D. (Ohio State) Emeritus Professor of Entomology (1969).
Cumkee, Carroll Fleming, M.A.E. Associate Professor Emeritus of Education (1966).
Danis, Anthony Leo, M.S., Professor Emeritus of Environmental Engineering (1967).
Davidson, Robert Franklin, Ph.D. (Yale), Emeritus Professor of Humanities (1962).
Davis, John Henry, Ph.D. (Chicago), Professor Emeritus of Botany, IFAS (1969).

Dickenson, Carrie Elizabeth, M.S., Professor Emeritus, (Clothing and Textile Spec. Emeritus), IFAS, (1969).
Dovell, Junius Elmore, Ph.D. (North Carolina), Professor of Social Sciences (1968).
Duer, Margaret Dickinson, B.S. in L.S., Assistant Librarian and Chairman of the Circulation Department (1968).
Eddins, Auther Hanmer, Ph.D. (Iowa State), Plant Pathologist Emeritus in charge Potato Investigation Laboratory (1963).
Fenn, Henry Anderson, LL.B., Professor of Law and Dean Emeritus, College of Law (1948-1959).
Fernandez, Pedro Villa, M.A., Professor Emeritus of Spanish (1966).
Fifield, Willard Merwin, M.S., Provost Emeritus for Agriculture (1962).
Foote, Perry Albert, Ph.D. (Wisconsin), Dean Emeritus of the College of Pharmacy and Professor of Pharmaceutical Chemistry; Director, Bureau of Professional Relations (1967).
Forsee, William Thomas, Ph.D. (Florida), Chemist Emeritus and Head Everglades Experiment Station (1968).
Foster, Charles Richard, Ed.D. (Harvard), Professor Emeritus of Education (1966).
Fox, George Gillespie, Ph.D. (Princeton), Professor Emeritus of English (1963).
French, Rowland Barnes, Ph.D. (Iowa), Biochemist Emeritus, Agricultural Experiment Stations (1967).
Gager, William Atkins, Ph.D. (Peabody), Professor Emeritus of Mathematics (1968).
Geltz, Charles Gottlieb, M.S.F., Professor of Silviculture Emeritus (1966).
Gilcreas, F. Wellington, A.B., Professor Emeritus of Environmental Engineering (1968).
Goodwin, Frank, Ph.D. (Pennsylvania), Professor Emeritus of Marketing (1965).
Graham, Klein H., LL.D. (Tampa), Business Manager Emeritus (1948).
Groth, John Henry, Ph.D. (Washington), Professor Emeritus of Humanities (1963).
Hamilton, Henry Glenn, Ph.D. (Cornell), Professor Emeritus of Agricultural Economics and Agricultural Economist Emeritus, Agricultural Experiment Stations and Agricultural Extension Service (1965).
Harrell, George Thomas, Jr., M.D. (Duke), Dean and Professor of Medicine Emeritus (1965).
Harris, Henry Clayton, Ph.D. (Cornell), Professor Emeritus of Agronomy, IFAS (1969).
Henderson, Joseph Russell, M.S.A., Professor of Agronomy, IFAS (1935-1969).
Hinckley, Elmer Dumond, Ph.D. (Chicago), Head Professor of Psychology Emeritus (1963).
Hollinshead, Byron S., M.A., LL.D. (Grinnell), L.H.D. (Miami University), Professor of Humanities and Dean Emeritus of University College (1967).
Hollis, Robert Parker, B.S., Assistant Professor Emeritus of Industrial and Systems Engineering (1968).
Hunter, George William III, Ph.D. (Illinois), Professor Emeritus of Microbiology (1967).
Husa, William John, Ph.D. (Iowa), Professor of Pharmacy and Head of Department; Head Professor Emeritus of Pharmacy (1961).
Hutcherson, William Robert, Ph.D. (Cornell), Professor Emeritus of Mathematics (1969).
Jamison, F. S., Ph.D. (Cornell University), Professor (Chairman Emeritus and Horticulturist), IFAS (1934-1968).
Kelbert, David Gustaf Alfred, Associate Horticulturist Emeritus, Gulf Coast Experiment Station (1965).
Kelsheimer, Eugene Gillespie, Ph.D., (Ohio State), Professor (Entomologist) Emeritus, IFAS, Gulf Coast Experiment Station (1942-1969).
Kidder, Ralph Wyman, M.S., Animal Husbandman Emeritus (1968).
Kiker, John Ewing, Jr., M.C.E., Professor of Environmental Engineering and Civil Engineering and Chairman of Environmental Engineering Department (1968).
Kirk, William Gordon, Ph.D. (Iowa State), Emeritus Animal Scientist and Emeritus Vice-Director Range Cattle Experiment Station (1968).
Kokomoor, Franklin Wesley, Ph.D. (Michigan), Professor Emeritus of Mathematics and Astronomy and Head of Department (1960).

Kurtz, Albert K., Ph.D. (Ohio State University), Professor Emeritus of Psychology (1968).
Lackey, James Bridges, Ph.D. (Columbia), Professor Emeritus of Environmental Science (1965).
Lewis, Edward Haskell, M.A., Associate Professor of Mechanical Engineering (1969).
Little, Winston Woodard, M.A., Dean and Professor Emeritus, University College (1962).
MacTavish, Helen Bone, BSA., Dade County Extension Home Economics Agent (1969).
Martinson, Earl Pehr, M.A., Professor Emeritus of Industrial and Systems Engineering (1964).
McCubbin, Earl Noel, Ph.D. (Cornell), Horticulturist Emeritus, Potato Investigations Laboratory (1966).
McIntosh, Pleasant Ray, M.F.A., Professor Emeritus of Art (1968).
McLendon, Ida Ruth, Ph.D. (Ohio State), Associate Professor Emeritus of Education (1967).
McMullen, Kenneth Smith, M.Ag., Professor Emeritus (Extension District Agent Emeritus), IFAS, (1969).
Mead, Arthur Raymond, Ph.D. (Columbia), Ed.D. (Miami), Director, Bureau of Educational Research and Professor Emeritus of Education (1950).
Mehrhof, Norman Ripley, M.Ag., Professor Emeritus of Poultry Science; Poultry Husbandman Emeritus, Agricultural Experiment Stations (1963).
Meleney, Henry, M.D. (Columbia University), Professor Emeritus of Medicine (1966-1966).
Muehlner, Felix, U.J.D., (Frederick William, Germany), Professor Emeritus of Management (1969).
Neller, Joseph Robert, Ph.D. (Rutgers), Soils Chemist Emeritus, Agricultural Experiment Stations (1962).
O'Steen, Alva Woodrow, M.S., Professor Emeritus (Supervisor Emeritus of the Florida National Egg Laying Test), IFAS (1969).
Petersen, Erhart Gustaf, J.D., M.B.A., Professor Emeritus of Accounting (1969).
Phaneuf, Victor S., B.S.E., Associate Professor Emeritus of Building Construction (1969).
Philpott, Frank, Ed.D. (New York) Assistant Professor Emeritus of Physical Education (1967).
Platt, William J., Jr., M.S.A., Professor Emeritus (Extension District Agent Emeritus), IFAS, (1968).
Prescott, Ford Lewis, M.E., Professor Emeritus of Mechanical Engineering (1963).
Price, Joseph Edwin, B.A.E., Professor Emeritus of Socal Sciences, Adviser (1968).
Reitz, Julius Wayne, Ph.D. (Wisconsin), LL.D. (Tusculum), LL.D. (University of Miami), D.Sc. (Jacksonville University), LL.D. (Colorado State), President Emeritus of the University (1967).
Robertson, Charles Archibald, Litt. D. (University of the South), Professor Emeritus of English (1965).
Ruff, William, Ph.D. (Yale), Professor Emeritus of English (1969).
Salt, Ellis Benton, Ed.D. (New York), Professor Emeritus of Professional Physical Education (1967).
Sanders, Dorsey Addren, D.V.M. (Kansas State), Professor Emeritus (Veterinarian), Institute of Food and Agricultural Sciences (1968).
Schmidt, Doris Theodotia, M.A., Professor Emeritus of Music (1966).
Schoonmaker, Lucas Elmendorf, B.S.E.E., Associate Professor Emeritus of Electrical Engineering (1966).
Shields, Murray W., Ph.D., (University of Washington), Professor Emeritus of Economics (1969).
Shoemaker, James Sheldon, Ph.D. (Minnesota), Professor of Food Science Emeritus and Horticulturist Emeritus, Agricultural Experiment Stations (1966).
Simons, Joseph H., Ph.D. (University of California), Professor Emeritus of Chemical Engineering (1967).
Skellett, Albert Melvin, Ph.D. (Princeton), Professor Emeritus of Electrical Engineering (1969).
Smith, Charles Bassel, Ph.D. (Wisconsin), Professor Emeritus of Mathematics (1968).

Smith, Frederick Burean, Ph.D. (Iowa State), Professor of Soils Emeritus and Microbiologist Emeritus, Agricultural Experiment Stations (1967).
Smith, Winston Oliver, Ph.D. (Purdue), Professor Emeritus of Mechanical Engineering (1968).
Spache, George Daniel, Ph.D. (New York), Professor Emeritus of English and Education (1969).*
Spencer, Ernest Leavitt, Ph.D. (Rutgers), Soils Chemist Emeritus and Head Gulf Coast Experiment Station (1968).
Starr, Nathan Comfort, Ph.D. (Harvard), Emeritus Professor of English and Humanities (1963).
Stover, Loren Haight, Assistant in Horticulture Emeritus, Watermelon and Grape Investigations Laboratory (1965).
Swanson, Leonard Erwin, D.V.M. (Ohio State), Professor Emeritus (Parasitologist), Institute of Food and Agricultural Sciences (1967).
Thompson, William Louden, B.S., Entomologist Emeritus, Citrus Station (1962).
Tissot Archie Newton, Ph.D. (Ohio State), Entomologist Emeritus, Agricultural Experiment Stations (1964).
Todd, Mary Leah, BSHE, Palm Beach County Extension Home Economics Agent (1969).
Torraca, Pasquale Mario, Professor Emeritus, Department of Architecture (1964).
Townsend, Ruth Overstreet, R.N., Senior Research Assistant, IFAS (1969).
Turner, Glover Manuel, LL.B., Head Emeritus, Department of Special Programs, Division of Continuing Education (1968).
Tuttle, Frank Waldo, Ph.D. (Iowa), Professor Emeritus of Economics (1967).
Warfel, Harry Redcay, Ph.D., (Yale), Professor Emeritus of English (1969).
Watkins, John Vertrees, M.S.A., Professor Emeritus of Ornamental Horticulture (1963).
Watkins, Marshall Owen, D.P.A. (Harvard), Dean Emeritus, Division of Continuing Education and Dean for Extension Emeritus, IFAS, (1969).
Weber, George Frederick, Ph.D. (Wisconsin), Professor Emeritus of Plant Pathology (1964).
Weil, Joseph, D.Sc. (Jacksonville University), Dean Emeritus, College of Engineering (1966).
West, Stanley LeRoy, LL.B., B.S. in L.S., Director of Libraries Emeritus and Professor of Library Science Emeritus (1967).
Whitner, Benjamin F. Jr., B.S.A., Assistant Horticulturist Emeritus, Central Florida Experiment Station (1967).
Wilgus, Alva Curtis, Ph.D. (Wisconsin), Professor Emeritus of History and Director Emeritus, Caribbean Conferences (1967).
Williamson, Robert Crozier, Ph.D. (Wisconsin), Professor Emeritus of Physics (1962).
Wilson, John Wallace, Sc.D. (Harvard), Entomologist Emeritus, Central Florida Experiment Station (1966).
Wilson, William Harold, Ph.D. (Illinois), Professor Emeritus of Mathematics and Logic; Counselor (1959).
Wise, Jacob Hooper, Ph.D. (Peabody), Chairman Emeritus of Comprehensive Course: Reading, Speaking, and Writing and Professor Emeritus of English (1964).
Wolfe, Herbert Snow, Ph.D. (Chicago), Professor Emeritus of Fruit Crops Institute of Food and Agricultural Sciences. (1964).
Yoder, Lowell Curtis, M.A., Associate Professor Emeritus of Marketing (1967).

LIST OF DECEASED STAFF

1968-1969

Anderson, Thomas Aubrey, M.A., Assistant Professor of Education and Assistant Director, University Placement Service (1963-1967). (Deceased July 5, 1968).

Biber, David NMN, M.D., (Cincinnati University), Clinical Instructor in Medicine (1968-1968).

Bless, Arthur Aaron, Ph.D. (Cornell), Professor Emeritus of Physics and Director of Bioelectrical Potential Project (1951) (Deceased Jan. 19, 1969)

Chace, James Edward, L.L.B., Ph.D., Professor Emeritus of Real Estate (1965) (Deceased December 12, 1968).

Cherry, Henry Spurgeon, M.S., Assistant Dean of the College of Physical Education and Health, Professor of Professional Physical Education, Chairman of the Department of Intramural Athletics and Recreation (1942-1964). (Deceased June 7, 1968).

Cranford, Robert J., Ph.D. (Iowa), Professor of Journalism and Communications (1967-1967). (Deceased August 9, 1969).

Cresap, Ida Keeling, Librarian Emeritus, Agricultural Experiment Stations (1963) (Deceased May 31, 1969).

Davis, Edward John, M.Ed., Teacher, P. K. Yonge Laboratory School, (1963-1967).* (Deceased December 3, 1967).

Ellis, Gordon Brooks, Nassau County Agent, Agricultural Extension Service (1944-1968) (Deceased December 13, 1968).

Emmel, Mark Wirth, D.V.M. (Iowa State), Professor Emeritus (Veterinarian), Institute of Food and Agricultural Sciences (1961). (Deceased April 8, 1969).

Farris, Charles Detyens, Ph.D. (Chicago), Professor of Political Science (1958-1964). (Deceased February 24, 1969).

Ford, James A., Ph.D. (Columbia), Curator of Anthropology, Florida State Museum (1964-1964). (Deceased February 25. 1968).

Ford, Sudella Juanita, B.S., Assistant Hillsborough County Extension Home Economics Agent (Deceased May 23, 1969).

Gallagher, William B., M.D. (St. Louis University), Resident in Psychiatry (1967-1967). (Deceased May 27. 1968).

Gardner, Jane Lockwood, M.Ed., Assistant Professor of Physical Education and Chairman of Department of Required Physical Education for Women (1961-1962) (Deceased June 18, 1969).

Gratz, Levi Otto, Ph.D. (Cornell), Assistant Director and Plant Pathologist Emeritus (Deceased 1968).

Heidingsfield, Myron S., Ph.D., (New York), Professor of Marketing and Director, International Marketing Resource Center (1963-1964). (Deceased May 30, 1969).

Leps, Joseph McElroy, Ed.D. (Columbia), Professor of Education (1943-1945).* (Deceased August 17, 1968).

Moore, Julian S., M.S.A. Poultry Husbandman, Agricultural Extension Service (1950-1969). (Deceased November, 1969).

Norman, James William, Ph.D., (Columbia) Dean Emeritus of the College of Education (1955). (Deceased April 12, 1969).

Paden, William Lee, Jr., M.A., Instructor, P. K. Yonge Laboratory School (1958-1962). (Deceased January 20, 1968).

Patrick, Rembert Wallace, Ph.D. (North Carolina), Julian C. Yonge Graduate Research Professor Emeritus of History (1966). (Deceased November 16, 1967).

Patrick, Roger, Ph.D. (Iowa State), Bacteriologist, Citrus Experiment Station (1952-1952) (Deceased March 17, 1968).

Pearce, James Martine, Ph.D. (Florida), Assistant Professor of Chemistry (1946-1953). (Deceased March 6, 1969).

Rethlingshafer, Dorothy Adelaide, Ph.D. (North Carolina), Associate Professor of Psychology (1947-1969). (Deceased July 25, 1969).

Savage, Zach, M.S.A., Agricutural Economist, (Deceased 1968).

Saville, Thorndike, M.S., Professor Emeritus of Environmental Engineering February 29, 1969.

Schmidlkoffer, Michael Anthony, M.B.A. Interim Instructor of Insurance (1969-1969). (Deceased October, 1969).

Senn, Pettus Holmes, Ph.D. (Wisconsin), Head Professor Emeritus, Department of Agronomy, College of Agriculture (1961). (Deceased November 6, 1969).

Shealy, Arthur Liston, D.V.M. (McKillip), Head Professor Emeritus of Animal Husbandry, Animal Husbandman and Head (Deceased 1967).

Tucker, William Burns, M.S., Assistant Professor of Mathematics; Adviser (1958-1964). (Deceased February 27, 1969).

Waters, Rolland H. Ph.D. (Chicago), Professor Emeritus of Psychology (1964). (Deceased July 1967).

Wiles, Kimball, Ph.D., (Ohio State), Dean of the College of Education and Professor of Education (1951-1963). (Deceased February 1, 1968).

Wood, Charles George, Jr., Ph.D. (Florida State University), Assistant Professor of Education (1966-1966). (Deceased February 1, 1968).

Young, Howard Bacon, M.S.A., Assistant Professor (Assistant Extension Dairy Technologist), IFAS (1957-1957). (Deceased October 1, 1969).

Ziegler, Edwin Allen, D.Sc. (Franklin and Marshall), Professor Emeritus of Forest Economics and Management (1951). (Deceased October 14, 1967).

General Information

HISTORICAL NOTE

The University of Florida is a combined state University and land-grant college located in the northern center of the State. While its beginnings go back to the days previous to Florida's admission to the Union in 1845, its first college—the College of Arts and Sciences—did not open until 1853. A few years later the passage of the Morrill Act provided lands for state institutions of higher learning which would promote agriculture, mechanical arts and military science, resulting in the beginnings of the College of Agriculture, the College of Engineering, and the Agricultural Experiment Station.

By 1905 there were a half-dozen state-supported institutions of higher learning in Florida, located in various parts of the State and struggling for existence. At that time the Florida Legislature took a step unprecedented in the history of education in any state by passing the Buckman Act, which abolished the six State Colleges and provided for the establishment of two new institutions, of which the University of Florida was one. It was established for men, at Gainesville and placed under the direction of the Board of Control, a body created by the Buckman Act. The seven members of the board represented the seven geographical sections of the State, and served without compensation, except for travel and incidental expense incurred in the performance of duty. In 1947 the University was made co-educational. The nine-member Board of Regents replaced the Board of Control in 1965.

SETTING AND ENVIRONMENT

The University of Florida is located in Gainesville, a city of approximately 62,000, excluding University of Florida students. Situated in north central Florida, midway between the Atlantic Ocean and the Gulf of Mexico, the city is known as an agricultural and small industrial center.

In addition to a moderate climate, Gainesville offers many other advantages to students of the University. A golf course is within easy reach of the campus, and swimming and boating accommodations are available at nearby springs and rivers. The lakes in the vicinity abound in fresh water fish, while the Atlantic Ocean and the Gulf of Mexico are within a two hours' drive. As the seat of Alachua County, the city is the focal point of diversified industrial and farming activities.

Practically every religious denomination is represented in the Gainesville area. Churches that are active include the Presbyterian, Baptist, Lutheran, Methodist, Catholic, Episcopal, Christian, Seventh Day Adventist, Church of Christ Scientist, Church of Christ, Christian and Missionary Alliance, Advent Christian, B'nai Israel, Church of Latter Day Saints, Church of the Nazarene, Assembly of God, Apostolic Church of Jesus Christ, Church of God, Disciples of Christ, Pentecostal Holiness, United Church of Christ, Unitarian-Universalist, and several of these denominations maintain chapels adjacent to the campus. These include St. Augustine Chapel (Catholic Student Center), The Baptist Student Union, Wesley Foundation (Methodist Student Center), Chapel of the Incarnation (Episcopal Student Center), Westminster Fellowship (Presbyterian Student Center), The Church of Christ, B'nai B'rith Hillel Foundation (Jewish), the Lutheran Student Association, The Latter Day Saints (Mormon) and the Society of Friends (Quaker). All of the chapels carry on extensive programs of vital interest to University students.

TRANSPORTATION

The city is served by the Seaboard Coast Line Railway. A schedule of daily bus service, with connections to all points of the United States, is maintained by Southeastern Greyhound Lines and Trailways Bus System. Eastern Airlines serves Gainesville with daily flights with connections to all parts of the U.S. Executive and Shawnee Airlines have 30 flights daily to points in the state and region.

ORGANIZATION OF THE UNIVERSITY
GOVERNMENT OF THE UNIVERSITY

Direct supervision over the University of Florida, its policies and affairs, is vested in the Board of Regents, a body composed of nine citizens from different regions of the state who are appointed by the Governor for nine-year terms. University affairs are administered by the president with the advice and assistance of the Administrative Council. The legislative body of the University is the University Senate.

QUARTER SYSTEM

The University of Florida operates on a quarter system. In a twelve-month year there are four quarters running from September through August, averaging ten weeks of class instruction. Courses are scheduled in such a way that a student may enter the University at any quarter and proceed normally through an appropriate sequence of courses. Quarters begin in September, January, March and June.

UNDERGRADUATE INSTRUCTION
THE LOWER DIVISION

THE UNIVERSITY COLLEGE administers all of the work for the freshman and sophomore years, offering a program which includes the basic comprehensive courses in the major areas of knowledge and the courses prerequisite to the advanced work in the colleges and schools in the Upper Division.

THE UPPER DIVISION

THE COLLEGE OF AGRICULTURE, a unit of the Institute of Food and Agricultural Sciences, offers curricula in all of the major fields of agriculture and grants the degree of Bachelor of Science in Agriculture.

THE COLLEGE OF ARCHITECTURE AND FINE ARTS offers curricula in architecture, interior design, landscape architecture, building construction, fine arts, history of art, crafts, advertising design, art education, music and music education, and confers the degrees of Bachelor of Architecture, Bachelor of Design, Bachelor of Landscape Architecture, Bachelor of Building Construction, Bachelor of Fine Arts, Bachelor of Design in Art Education, Bachelor of Music and Bachelor of Music Education.

THE COLLEGE OF ARTS AND SCIENCES offers curricula leading to degrees of Bachelor of Arts, Bachelor of Science, and Bachelor of Science in Mathematics, with opportunities for specializing in many science and liberal arts fields. It offers the courses in mathematics, biological sciences, physical sciences, social sciences and humanities required in the curricula of the professional colleges.

THE COLLEGE OF BUSINESS ADMINISTRATION offers curricular programs leading to the Degree of Bachelor of Science in Business Administration. It also offers a specialized program leading to the degree of Bachelor of Advanced Accountancy.

THE COLLEGE OF DENTISTRY is being planned as an integral part of the J. Hillis Miller Health Center. The College expects to accept students beginning in September, 1972. Since part of the proposed curriculum will be presented jointly with the College of Medicine, the admission requirements will be the same for both schools.

THE COLLEGE OF EDUCATION has curricula in elementary and secondary school instruction leading to the degrees of Bachelor of Science in Education or Bachelor of Arts in Education. It also provides an in-service program for the teachers of the state. The P. K. Yonge Laboratory School, a unit of the College of Education, enrolls pupils from the kindergarten through the secondary school. Undergraduate teacher preparation programs are NCATE approved and lead to certification at pre-school, elementary, and secondary levels in Florida and twenty-seven other states where NCATE standards provide the basis for reciprocal agreements.

THE COLLEGE OF ENGINEERING offers curricula leading to the degree of Bachelor of Science in any of 11 engineering disciplines. The first degree in Environmental Engineering and Coastal and Oceanographic Engineering is the Master's degree.

THE SCHOOL OF FORESTRY is a unit of the Institute of Food and Agricultural Sciences. The school offers professional majors in Forestry, Wildlife and Forest Products Technology leading to the degree Bachelor of Science in Forestry.

THE COLLEGE OF HEALTH RELATED PROFESSIONS, a unit of the J. Hillis Miller Health Center, offers curricula leading to a Bachelor of Science in Medical Technology, a Bachelor of Science in Occupational Therapy, and a Bachelor of Science in Physical Therapy.

THE COLLEGE OF JOURNALISM AND COMMUNICATIONS offers curricula leading to the degrees of Bachelor of Science in Journalism, Bachelor of Science in Advertising, and Bachelor of Science in Broadcasting.

THE COLLEGE OF LAW offers a curriculum leading to the degree of Juris Doctor.

THE COLLEGE OF MEDICINE, a unit of the J. Hillis Miller Health Center, offers a curriculum leading to the professional degree of Doctor of Medicine. Ph.D. degrees in basic medical sciences are offered through the Graduate School.

THE COLLEGE OF NURSING, a unit of the J. Hillis Miller Health Center, offers a curriculum leading to the Bachelor of Science in Nursing degree.

THE COLLEGE OF PHARMACY, a unit of the J. Hillis Miller Health Center, offers a curriculum leading to the degree of Bachelor of Science in Pharmacy.

THE COLLEGE OF PHYSICAL EDUCATION AND HEALTH offers services and training through the Departments of Required Physical Education for Men and Women, the Department of Intramural Athletics and Recreation, and the Department of the Professional Curriculum. The Department of Professional Curriculum offers programs leading to undergraduate degrees in health education, physical education and recreation, and graduate degrees in physical education. Professional areas of preparation include: teachers of health education or physical education, health educators for public or voluntary agencies, and recreation directors.

SPECIAL INSTRUCTIONAL UNITS SERVING ALL COLLEGES AND SCHOOLS

THE DEPARTMENT OF MUSIC has the responsibility for such musical organizations as the University Bands, Orchestras, Choruses, and Glee Clubs, and offers courses in the following areas: (1) Theory of Music, (2) History and Literature, (3) Applied Music, (4) Music Education, and (5) Ensemble Music.

THE DIVISION OF MILITARY SCIENCE offers the four year program and the two year program of Army ROTC. Completion of either of these programs by a student leads to his being commissioned in one of the branches of the United States Army Reserve or the Regular Army. Flight (pilot) training is available for selected Senior Cadets.

THE DIVISION OF AEROSPACE STUDIES offers the four year program and two year program of Air Force ROTC. Completion of either of these programs by a student leads to his being commissioned in the Air Force. Flight (pilot) training is given to the selected, qualified Senior Cadets electing a pilot career in the Air Force.

The Army Basic Course and the Air Force General Military Course include six quarters of instruction.

THE DEPARTMENTS OF REQUIRED PHYSICAL EDUCATION administer the programs in physical fitness and sports—which will meet the lower division personal development requirements.

GRADUATE INSTRUCTION

THE GRADUATE SCHOOL offers programs leading to the degrees of Doctor of Philosophy in 56 fields; Doctor of Education, Specialist in Education, Engineer,

Master of Agriculture, Master of Business Administration, Master of Building Construction, Master of Education, Master of Engineering, Master of Nursing, Master of Physical Education and Health, Master of Rehabilitation Counseling, Master of Statistics, Master of Arts in Teaching, Master of Science in Teaching, Master of Science in Agriculture, Master of Science in Building Construction, Master of Science in Engineering, Master of Science in Forestry, Master of Science in Statistics, Master of Science in Pharmacy, Master of Science, Master of Fine Arts, Master of Arts in Architecture, Master of Arts in Education, Master of Arts in Journalism and Communications, Master of Arts in Physical Education and Health, and Master of Arts. All instruction is carried on by the faculties of the colleges and schools listed above.

ACADEMIC AFFAIRS

THE VICE PRESIDENT FOR ACADEMIC AFFAIRS is the chief academic officer for the University. In this capacity he supervises the allocation of resources in the academic areas, the improvement of instruction, the correlation of instructional activities, the development and improvement of research activities, the evaluation of university academic activity, and the establishment of policy with respect to employment, promotion, and tenure of the academic staff. In the absence of the President and Executive Vice President he acts with the authority and responsibility of the President.

INSTRUCTIONAL SERVICE UNITS

THE BOARD OF UNIVERSITY EXAMINERS is responsible for admission and placement testing and for the measurement of achievement in the comprehensive courses in the University College.

THE VICE PRESIDENT FOR BUSINESS AFFAIRS is responsible for all business activities and financial operations. His responsibilities include the collection and disbursement of funds, purchasing, management of the auxiliary services and the administrative computer, control of property, staff personnel, auditing and maintenance of the physical plant and grounds of the University.

THE OFFICE OF THE REGISTRAR has charge of the admission and registration of students, the maintenance of academic records, the scheduling of courses, and the issuance of transcripts of student records.

THE COUNSELOR TO FOREIGN AGRICULTURE STUDENTS aids foreign students to integrate their American education more completely with actual conditions in their homelands; also, the office gives information to all students interested in foreign agricultural problems and careers in the tropics. The Counselor is located in McCarty Hall.

THE TEACHING RESOURCES CENTER supports the instructional and research programs of the University. It maintains and provides the following facilities and services: still photography; cinematography; audio laboratory; graphics department; A/V equipment and maintenance; technical advice and assistance, and student ID cards.

THE CENTER FOR LATIN AMERICAN STUDIES

The Center for Latin American Studies is the University unit responsible for directing or coordinating interdisciplinary instructional and research programs related to the Latin American area. It is a budgeted unit within the University and is administered by a Director immediately responsible to the President.

DIVISION OF BIOLOGICAL SCIENCES

The Division of Biological Sciences is organized on a cross college basis to provide stimulation and coordination in the Biological Sciences. The Division has organized faculties, with staff from many disciplines in the several colleges, in Cellular and Molecular Biology, Genetics, Developmental Biology, Parasitology, Marine

Biology and Radiation Biology. Each faculty is responsible for developing and supervising a core program in its special area. In addition to the cross college programs, the Division serves to coordinate biological science wherever it exists in the University. The department of Zoology and the area of Marine Science in Arts and Sciences, Botany and Bacteriology in Agriculture and Biological Science in the University College are specifically designated as administratively a part of the Division of Biological Sciences.

UNIVERSITY OF FLORIDA LIBRARY SERVICE

The library system consists of two central units, the College Library and the Research Library, and branch libraries in the Colleges of Architecture and Fine Arts, Education, Engineering, Law, the Institute of Food and Agricultural Sciences, the J. Hillis Miller Health Center, the Department of Chemistry, and the P. K. Yonge Laboratory School. In addition, reading room facilities have been provided for Journalism and Communications, Health and Physical Education, Music and the dormitory areas.

The College Library is designed to meet the needs of the undergraduate. The resources of the Research Library also are available to the undergraduate for specialized needs.

The holdings of the libraries number over 1,396,101 cataloged volumes and a large number of uncataloged documents and newspapers. Many of the materials are in the form of phonograph records, microfilm and microcards. Among the special collections in the library system are the Rare Book Collection, the Dance-Music-Theatre Archives, the P. K. Yonge Library of Florida History, the Marjorie Kinnan Rawlings Collection, which consists of manuscripts, typescripts, and memorabilia of one of America's distinguished novelists, and the Collection of Creative Writing, which includes work sheets, manuscripts, and other literary papers of significant contemporary American and British authors. In recent years, special emphasis has been placed upon strengthening the holdings for the Latin American Area Studies Program, especially for the West Indies and the Caribbean areas.

There are centers for reference service in both the College and Research Libraries. The major collection of bibliographies and reference books is located on the first floor of the Research Library, with librarians available to give assistance to students and faculty.

Photoduplication services are available.

The regular schedule for the College Library is Monday through Saturday, 8:00 A.M. to 11:00 P.M.; Sunday, 2:00 P.M. to 11:00 P.M. The libraries serving the various academic colleges and schools observe a similar schedule, with variations.

The *Library Handbook for Students* provides helpful information on hours, loan periods, and special services.

THE FLORIDA STATE MUSEUM

The Florida State Museum was created by an act of the Legislature in 1917 as a department of the University of Florida. Through its affiliation with the University it carries the dual responsibility of the State and University Museum.

The Museum operates as a center of research in anthropology and natural history. Its accessory functions as an educational arm of the University are carried forward through interpretive displays and scientific publications. Under the administrative control of the director are the three departments of the Museum: Natural Sciences, staffed by scientists and technicians concerned with the study and expansion of the research collections of animals; Social Sciences, whose staff members are concerned with the study of historic and prehistoric cultures; Interpretation, staffed by specialists in the interpretation of knowledge through museum exhibit techniques.

The Museum exhibition halls occupy the first two floors of the Seagle Building, a ten-story office building located in downtown Gainesville, nine blocks from the campus. These halls are open to the public from nine-thirty until five o'clock every day except Sundays and major holidays, when they are open from one to five o'clock. There is no admission charge. The Museum is frequently used by

University and public school classes and is visited by over 75,000 persons annually.

Occupying five additional floors in the Seagle Building and other space on campus, the research collections now total approximately one million items. These collections are under the care of curators who encourage the scientific study of the Museum's holdings. Materials are constantly being added to the collection both through gifts from friends and through collecting by staff members. The archaeological collections are noteworthy. There are extensive study collections of birds, mammals, mollusks, reptiles, amphibians, fish, and vertebrate fossils. The latter seven collections are cooperatively maintained by the Museum and Department of Zoology. The collection of invertebrate fossils is maintained in cooperation with the Department of Geology. Opportunities are provided for students, staff, and visiting scientists to use the collections. Research and field work are presently sponsored in the archaeological, paleontological and zoological fields. Students interested in these specialties should make application to the appropriate teaching department.

GENERAL STATE AND UNIVERSITY AGENCIES

THE FLORIDA COOPERATIVE AGRICULTURAL EXTENSION SERVICE is the field arm of the University of Florida and the United States Department of Agriculture in educational work relating to agriculture and home economics and represents the total University in community-oriented programs of continuing education. It is one of four major divisions of the Institute of Food and Agricultural Sciences at the University of Florida. It works with both adults and youth, the latter primarily through 4-H Clubs.

In cooperation with Boards of County Commissioners, the Agricultural Extension Service jointly employs agricultural agents in 66 counties. Extension home economics agents are employed in 57 counties. These agents work with local people to determine their educational needs. Programs are developed based on these needs and are designed to teach practical application of agricultural and home economics research information. The agents are faculty members of the University of Florida, appointees of the United States Department of Agriculture and employees of their respective counties.

Educational assistance is given the people of Florida on agricultural problems such as commercial crop and livestock production and marketing. Home economics programs focus on helping families solve their problems in such areas as clothing and textiles, food and nutrition, housing, home furnishings, family life, home management, family economics, health and safety, household equipment and consumer education. Efforts also are directed to other areas such as farm and home business management, community development, leadership development and public affairs.

A staff of specialists in agriculture and home economics provides technical support for programs throughout the state. These specialists keep in touch with the latest observations and findings by the Florida Agricultural Experiment Stations, the United States Department of Agriculture, other Land-Grant Universities, and other current, reliable sources of subject-matter information. They analyze and interpret this information in terms of its application to given areas and problems, and keep the agents informed on research of concern to the people in the counties. Cooperative efforts with organizations and other agencies are vital parts of the programs over the state.

Information is disseminated by the Agricultural Extension Service through a variety of teaching methods such as demonstrations, meetings, tours, visits to farms and homes where individual attention is given to problems, and personal contacts in offices or by telephone. Extensive use is made of radio, television, news stories, and publications. Short courses, institutes and conferences are held throughout the state and on the campus in cooperation with agricultural and home economics groups.

The office of UNIVERSITY RELATIONS AND DEVELOPMENT is responsible for the long-range advancement program of the University by obtaining understanding and support to enhance the resources available. Alumni Services, Development Services, Information Services, Public Functions and Publications are divisions of this office.

THE DIVISION OF INFORMATION SERVICES interprets the University's programs, policies and objectives through all mass communications media, includ-

ing newspapers, radio, television, magazines, motion pictures, publications, photographs, special displays, exhibits and community relations projects. In fulfilling such responsibilities, the Division of Information Services operates as an administrative coordinating unit to help create a climate for better public understanding of higher education and the University of Florida.

THE DIVISION OF PUBLICATIONS works with University academic units, departments, service offices and other campus-related organizations in developing publications to meet various needs. Coordination of copy, content, design, production and contract procedures are integral functions of the office while assisting in the preparation of booklets, folders, brochures, pamphlets and other printed material.

THE DIVISION OF ALUMNI SERVICES' main purpose is to bring together the organized efforts of alumni in the promotion of the interests and needs of the University. It strives to encourage continuous participation by alumni in the life of the University, and provides the means of continued fellowship and association for graduates and former students.

It is also the headquarters office of the University of Florida Alumni Association, working closely with that organization in community and public relations, student recruitment and fund raising. It produces on a quarterly basis, University of Florida magazine and a University of Florida TODAY Newsletter. In addition, today it is active in the promotion and activities of the Schools and Colleges within the University as well as many other activities for the benefit of the University of Florida and its faculty and student body.

THE DIVISION OF DEVELOPMENT SERVICES is responsible for the coordination and supervision of all development and fund raising activities at the University. It also serves as the headquarters of the University of Florida Foundation, Inc., a non-profit corporation established to aid the University in seeking private financial support.

THE UNIVERSITY CENTER OF THE ARTS serves students, faculty, and the general public by presenting exhibitions and performances of the best works in the visual and performing arts.

THE UNIVERSITY GALLERY is an integral part of the new $1.75 million Architecture and Fine Arts complex. The Gallery is located on the campus facing south 13th Street (or U.S. 441). An atrium and a reflecting pool are two pleasing features of the Gallery's distinctive architecture style. The Gallery, with 3000 square feet of display space, is completely modern, air-conditioned and maintains a varied exhibition schedule of the visual arts during the year. The content of exhibitions displayed in the University Gallery range from the creations by traditional masters through to the latest and most experimental works by the modern avant garde. The minor arts of yesterday and today along with the creations of oriental and primitive cultures form topics for exhibitions scheduled. The Gallery originates one or two of the major exhibitions during the year. Each exhibition shows for approximately a month and the Gallery's hours are from 9 A.M. to 5 P.M. daily except Sunday when they are 1 P.M. to 5 P.M. The Gallery is closed on Saturdays and holidays and during the month of September.

THE TEACHING GALLERY of the Department of Art is located adjacent to the Department's office area, on the third floor of the new Classroom Building, in the College of Architecture and Fine Arts complex. As a direct and physical adjunct to the Art Department's teaching program this Gallery displays smaller traveling exhibitions of merit as well as one man shows by the faculty artists and student exhibitions. The Gallery is open Monday through Friday from 9 A.M. to noon and from 1:30 P.M. to 5 P.M. It is closed Saturdays and Sundays.

WRUF, STATE AND UNIVERSITY OF FLORIDA RADIO STATION operates on 850 kilocycles with a power of 5,000 watts. WRUF-FM operates on 103.7 megacycles on a radiated power of 27,000 watts. They are both affiliated with the National Broadcasting Company and originate the University of Florida Football and Basketball Networks. WRUF has one of the largest recorded libraries of any radio station in the country, and has UPI news service.

One of WRUF's more important functions is that of furnishing practical experience to students enrolled in the radio programs of the University. The extent to which this policy is applied is demonstrated by the fact that the operating personnel

of WRUF consists almost entirely of University students specializing in radio work, and the effectiveness of this training is demonstrated by the nationwide reputation which WRUF has achieved for the developing of some of this country's leading announcers and radio executives. The various radio curricula in addition to providing this practical operating experience requires a selection of courses from many of the departments of instruction of the University. The student is taught an awareness of the social obligations placed on any medium whose purposes include public entertainment, information, education, and cultural advancement. He is given the broadest possible background, to the end that the social implications of radio as a medium for influencing the public may be recognized and acted upon. These are important aspects of the program and should be the beginning of the building of a breadth of viewpoint on the part of the student which he will continue to cultivate by reading and study after he has completed the training program.

WRUF and WRUF-FM employ approximately twenty to thirty students in their operations which give these students commercial operation experience as WRUF is a commercial non-tax supported auxiliary of the University of Florida.

All student personnel used by Stations WRUF and WRUF-FM are selected and hired on the basis of necessity on the part of the Stations, and talent, attitude, scholarship requirements (2.0), fitness for job and future college program on the part of the students as determined by personal interviews and/or open auditions with and for the Station's executive personnel. Open auditions are announced publicly; however, preference is given those applying who plan future activity in broadcasting.

WUFT, UNIVERSITY OF FLORIDA EDUCATION TELEVISION STATION, operates on Channel 5. It is affiliated with National Educational Television (NET), the National Association of Educational Broadcasters, and it is a unit of the Florida Educational Television Network.

WUFT's function is four-fold: (1) to provide an educational and cultural service to the community so that as many persons as possible may share in higher education and its attendant cultural environment; (2) to assist in the instructional role of the University through broadcast of curricular offerings; (3) to help advance the techniques of teaching through television; (4) to provide University students with practical training in television broadcasting to supplement their broad academic background.

With the exception of those persons in executive positions, WUFT is operated entirely by students.

WUFT's modern studios are located in the College of Journalism and Communications. The transmitter is located north of Gainesville.

RADIO CENTER is a unit for teaching broadcast majors in the College of Journalism and Communications and for broadcasting credit course material. Broadcast majors prepare and appear on informational programs broadcast in Gainesville and on commercial radio stations throughout Florida.

The purpose of THE UNIVERSITY OF FLORIDA PRESS is to encourage, publish, and promote original and scholarly manuscripts which will aid in developing the University as a recognized center of research and scholarship.

In addition to its broad range of state, regional, and inter-American titles, the Press publishes books of general interest, and six separate series: the Latin American Gateway Series, the Institute of Gerontology Series, the Latin American Monographs, (Series Two), and the University of Florida Monographs (Humanities and Social Sciences). The Press is also the publisher of the HANDBOOK OF LATIN AMERICAN STUDIES which is sponsored by the Library of Congress.

The Press Board of Managers, including the director and fifteen faculty members appointed by the President of the University, determines policies relating to the issuance of author contracts and the acceptance of manuscripts submitted for publication.

The University of Florida Press is a member of the Association of American University Presses and the American Book Publisher's Council.

THE DIVISION OF CONTINUING EDUCATION provides University-wide leadership and coordination for continuing education courses and programs. Its staff works with and assists individual colleges in developing and conducting continuing education programs in their respective areas as well as those which are inter-

disciplinary in nature. The Division also administers the State Center for Continuing Education located in Jacksonville, the inter-university Correspondence Study Department and designated federally funded programs such as those provided under: The State Technical and Vocational Services Act (P.L. 89-182); The Higher Education Act of 1965 (P.L. 89-329); The Elementary and Secondary Education Act (P.L. 89-10). Cooperative Extension Service personnel are utilized in community oriented programs under Title I of P.L. 89-329.

TRAVELING SCHOLAR PROGRAM

The state University System affords, under the Traveling Scholar Program, an opportunity for graduate students to take course work or conduct research activities at any of the universities in the State System. The course work taken under the auspices of the Traveling Scholar Program at another university in the System will apply for graduate degree credit at the student's home campus. The deans of the graduate schools of the State universities are the coordinators of the Program. For details regarding the Program and for approval to participate in it, students must apply to the dean of the graduate school on their home campus.

ORGANIZED RESEARCH

THE DIVISION OF SPONSORED RESEARCH has two general functions: (1) the administration and promotion of the Sponsored Research program and (2) the support of the total research program of the University in a manner which produces maximum benefit to the University and the greatest service to the state of Florida. All proposals for the sponsorship of research, grants-in-aid, or training grants must receive the approval of the Director of Research. Subsequent negotiations with potential contracting agencies or sponsors of research projects are carried on under the Director's supervision.

The activities of the Division of Sponsored Research are intended to stimulate growth and to assist in expanding a balanced research program throughout the University. These activities are intimately related to the support of the graduate program. They also are intended to relieve principal investigators and departments of many of the detailed administrative and reporting duties connected with some sponsored research. The duties and responsibilities of the Division, of course, do not infringe upon the prerogative of the principal investigator to seek sponsors for his own projects nor upon the responsibility of the researcher for the scientific integrity of a project. In direct contacts between a principal investigator and a potential sponsor, however, prior clearance should be obtained from the Division to insure a uniformity in contract requirements and to avoid duplication of negotiations with the same sponsor.

The Division of Sponsored Research is administratively responsible to the Vice President for Academic Affairs. Policies and procedures for the operation of the Division are developed by a Board of Directors working with the Director of Research within the general framework of the administration, policies, and procedures of the University. The Research Council serves as adviser on scientific matters. The Dean of the Graduate School and the Graduate Council serve as advisers on matters relating to the graduate program.

THE AGRICULTURAL EXPERIMENT STATIONS, a division of the Institute of Food and Agricultural Sciences, are responsible for extensive organized research leading to the improvement of all phases of Florida's widely varied agricultural production, processing and marketing. The Stations are administered by the Dean for Research located on the University of Florida campus and include main station departments as well as branch stations and field laboratories operating as an integral administrative unit.

Many members of the research staff of the Agricultural Experiment Stations are also members of the faculty of the College of Agriculture as are some in the Agricultural Extension Service. These three agricultural divisions of the University work cooperatively in many areas under the administration of the Provost for Agriculture. While agricultural research is the primary objective of the Agricultural Experiment Stations, funds for graduate assistants are made available to encourage graduate training and professional scientific improvement.

Results of the research of the Agricultural Experiment Stations are published in scientific journals, bulletins, circulars, mimeographed reports and the *Sunshine State Agricultural Research Report* and are available to Florida residents without charge upon request to the Editorial Department of the Agricultural Experiment Station at Gainesville. The Agricultural Experiment Station cooperates closely with the Agricultural Extension Service in providing research findings for prompt dissemination.

Research at the Main Station is conducted within 18 departments—agricultural economics, agricultural engineering, agronomy, animal science and nutrition, bacteriology, botany, dairy science, entomology, food technology and nutrition, forestry, fruit crops, ornamental horticulture, plant pathology, poultry science, soils, statistics, vegetable crops and veterinary science. In addition to the above the Main Station has four units vital to its research programs, namely: editorial, library, field services, and business service.

In order to best serve the varied needs of Florida's diversified agriculture, branch stations and field laboratories are located at numerous locations having different climatic conditions, soil types and crops. Intensive research is conducted in all fields of agriculture such as citrus, vegetable, field crops, livestock, pastures, and many others.

The branch stations and field laboratories, and their locations, are as follows: Central Florida Station, Sanford; Citrus Station, Lake Alfred; Everglades Station, Belle Glade; Gulf Coast Station, Bradenton; North Florida Station, Quincy; Range Cattle Station, Ona; Sub-Tropical Station, Homestead; Suwannee Valley Station, Live Oak; West Florida Station, Jay; Brooksville Beef Cattle Research Unit, Brooksville; Indian River Field Laboratory, Fort Pierce; Plantation Field Laboratory, Fort Lauderdale; South Florida Field Laboratory, Immokalee; Potato Investigations Laboratory, Hastings; Big Bend Horticultural Laboratory, Monticello; Strawberry and Vegetable Investigations Laboratory, Plant City; Watermelon and Grape Investigations Laboratory, Leesburg; Ridge Horticultural Laboratory, Apopka, Marianna Field Laboratory, Marianna; and the Federal-State Frost Warning Service, Lakeland.

Certain phases of the research program are cooperative with the United States Department of Agriculture and other Federal departments as well as cooperative with numerous Florida agricultural agencies and organizations.

THE FLORIDA ENGINEERING AND INDUSTRIAL EXPERIMENT STATION developed from early research activities of the engineering faculty and was officially established in 1941 by the Legislature as an integral part of the College of Engineering. Its mandate is "to organize and promote the prosecution of research projects of engineering and related sciences, with special reference to such of these problems as are important to the industries of Florida."

The College and the Station are inextricably intertwined—the two activities cannot be separated functionally; they comprise the two arms of the whole engineering body. In many instances a program initiated primarily as a research entity has developed into a full-fledged academic department of the College, demonstrating the close interlocking relationship of the research and teaching functions.

Since the fall term of 1967, seven departments of the College of Engineering and the Experiment Station have moved into some 310,000 sq. ft. provided in seven modern new buildings and one remodeled building. These improvements, including equipment, have raised the value of the physical plant of the College to over $13 million.

The laboratories, staff, and facilities of other divisions of the University also are available to the Station research faculty through many outstanding interdisciplinary programs. These research faculty members comprise the teaching and lecture staff with whom the students come into daily contact in the classroom. With the close relationship that exists between teaching and research, students are exposed to many engineering and industrial problems normally not encompassed in a college program. Moreover, the undergraduate students frequently find employment on research projects as student assistants.

The Station receives only a small portion of its operating revenue from the state. The major support of its research activities is derived from contracts with government agencies, foundations, and industrial organizations. Large and small manufacturers avail themselves of the finest engineering research laboratories in the Southeast. The Station has superior facilities and staff in such fields as microelectronics and integrated circuits; power systems; metallurgy; ceramics; coastal and

oceanographic engineering; soil mechanics; transport phenomena and fluid dynamics; energy conversion; air and water pollution control; electrochemistry; fast neutron physics; nuclear rocket propulsion; dynamics and vibrations; communications; kinetics; ionics gaseous electronics and plasmas, and systems analysis, to name a few.

THE BUREAU OF RESEARCH is one of the activities of the College of Architecture and Fine Arts. It fosters and encourages research in all areas of the building arts and fine arts. It also provides an opportunity for graduate students and faculty members to engage in research and cooperate effectively in research with other University departments.

THE BUREAU OF ECONOMIC AND BUSINESS RESEARCH is the Research Division of the College of Business Administration. A part of the work of the Bureau is to provide economic and business information about Florida. A major source of this information is the FLORIDA STATISTICAL ABSTRACT published annually by the Bureau. By published reports of special research and through the monthly Economic Leaflets (sent free to any resident of Florida upon request), the monthly Business and Economic Dimensions, and special reports, the results of research work available to all residents of Florida. Consultant Services are rendered the business community, civic groups, and government. The Bureau makes it possible for teaching professors to engage in organized research and provides research training for graduate students.

THE PUBLIC ADMINISTRATION CLEARING SERVICE is a research, publication, and service adjunct of the Department of Political Science in the College of Arts and Sciences. It carries on a continuous program of research on public administration and public policy in Florida; it publishes research and surveys of governmental and administrative problems in both scientific and popular monograph form. In broad areas of public policy and public service training, it works in cooperation with other units of the University.

THE RESEARCH DIVISION OF THE COLLEGE OF JOURNALISM AND COMMUNICATIONS conducts research in the news media, in broadcasting, advertising, and public opinion.

THE FLORIDA WATER RESOURCES RESEARCH CENTER was established in 1964 as the result of the passage of P. L. 88-379—The Water Resources Research Act of 1964—"to stimulate, sponsor, provide for, and supplement present programs for conduct of research, investigation, experiments, and the training of scientists in the fields of water and of resources which affect water." The Center has a small administrative staff and the funds available to it are used largely in water research projects. It is under the general policy guidance of a Committee composed of the Vice-President for Academic Affairs, the Deans of the College of Arts and Sciences, Engineering, and Law, the Dean of Research, Institute of Food and Agricultural Sciences, and the Director of the Division of Sponsored Research. The operations are under a Director.

THE URBAN STUDIES BUREAU is a university-wide organization administered through the office of the Vice-President for Academic Affairs. Its function is to facilitate and encourage the development of interdisciplinary research in and of urban areas, the development of curriculum and training programs in urban studies and the establishment of a liaison between the University and urban areas.

THE DEPARTMENT OF PLANNING performs the coordinative and administrative services required to ensure the development of a physical plant which will best serve the goals of the many and diverse programs of the University of Florida at minimum long-range cost. Work is carried out by the staff and related committees in the areas of campus planning, capital budgeting and space assignment. The policies and procedures followed by the Department in its operation are available to anyone by application to the offices of the Department.

COMPUTING CENTER

The Computing Center of the University provides the services of IBM System/360 Model 65 and 1401 electronic computers, 563 Calcomp Plotter and other subsidiary equipment.

The principal functions of the center are:

1. To aid research by furnishing computing services for the faculty, staff, graduate students, and others.
2. To provide computing support for undergraduate and graduate classes.
3. To maintain a library of computer programs for the benefiit of users.
4. To carry on investigations in the theory and application of numerical analysis.
5. To conduct research under contract or other arrangements for university, federal, state, and other government agencies, as well as for foundations and individuals.
6. To assist in coordinating and developing University research programs in which the computer may be involved.
7. To provide machine computation and tabulating facilities for other educational and research units of the University.

The Computing Center is primarily a research unit, though members of the staff may teach courses in other departments. Thesis work may be carried on in the Center.

THE J. HILLIS MILLER HEALTH CENTER

THE J. HILLIS MILLER HEALTH CENTER at the University of Florida in Gainesville is a modern complex of institutions which advance human health and educate tomorrow's leaders in the health professions.

It is housed in a $26 million facility which includes the College of Medicine, the College of Nursing, the College of Health Related Professions, the College of Pharmacy and the Shands Teaching Hospital and Clinics, which is its center for modern patient care and clinical training of new physicians and others in the health fields. A College of Dentistry is in the active planning stages.

The academic programs of the Health Center prepare students to understand that tomorrow's health care must focus on the community in order to achieve the long range health of man. The programs help them to understand that health care involves the health team: the physician; the nurse; the dentist; the pharmacist; persons in health related professions; the community; the researcher; the educator; the counselor; the body of men and women who by training together—and later by working together—contribute more effectively to a person's well being.

The health-oriented professions exchange information within the Health Center, and draw upon the other resources of the University to further man's understanding of health and illness.

Since the opening of its first units—the Colleges of Medicine and Nursing—in 1956, the Health Center has become one of the most advanced centers for health care, education and research in the nation.

Located on the southern edge of the University of Florida campus, the Health Center was named for Dr. J. Hillis Miller, late president of the University whose vision and determination helped formulate the early planning of the health complex as an integral part of the University.

The Health Center building complex includes the Medical Sciences Building, the Shands Teaching Hospital and Clinics, activated in 1958, the Pharmacy Research Wing, opened in 1961, and the Jessie Ball du Pont Building which opened in 1967 and which includes a Children's Mental Health Unit and research laboratories concerned with the time-linked processes of human development.

A Veterans Administration Hospital across from the Health Center is engaged in a program of patient care, teaching, and research which is affiliated with the programs in the Health Center's colleges.

INSTITUTE OF FOOD AND AGRICULTURAL SCIENCES

The organization of the Institute of Food and Agricultural Sciences was approved by the Board of Regents in 1964. The Institute is the University of Florida's statewide agricultural research and educational organization. With programs extending into virtually every county and community in Florida, the primary

mission of IFAS is that of helping the State to realize its maximum potentials for agricultural development. This mission is carried out through the three closely related functions of resident instruction, research, and extension—including the programs of the College of Agriculture, the Agricultural Experiment Stations, the Agricultural Extension Service, and the School of Forestry. The Provost for Agriculture for the University coordinates the functions of this unique research and development program which serves the State's multi-billion agricultural industry—Florida's most important industry.

The offices of the Provost as well as the Deans for Resident Instruction, Research, and Extension are located near the center of the campus in McCarty Hall. Administrative offices of the School of Forestry are located in Rolfs Hall.

Developing the trained manpower to serve Florida's dynamic agricultural industry is the mission of the resident instruction function of IFAS. The curriculums of the teaching program for the different fields of study are structured to provide the training necessary for its students to meet the ever changing needs of the State's highly specialized agriculture and related businesses.

The mission of the research division of IFAS is directed at developing new and improved technology to enable Florida's agriculture to become more efficient and improve its competitive position. This mission is accomplished through the research programs of the 19 on-campus departments of IFAS as well as through the efforts of the vast network of 22 experiment stations, branch stations or field laboratories located from Pensacola to Homestead. Basic and applied research are the products of this network. Many of these units aim their efforts primarily at developing new and improved technology to meet the needs of the area in which they are located.

Concerned with off-campus educational endeavors, the extension programs of IFAS are aimed at getting new knowledge used in such a way that maximum benefit can be realized by the people of Florida. The extension program at the local level is cooperatively administered by the University of Florida, the several Boards of County Commissioners, and the United States Department of Agriculture. The County Agricultural and Home Economics Agents located in 66 of Florida's counties are members of the faculty of the University of Florida and conduct both youth and adult educational programs virtually in every community of the State.

The reputation of IFAS, as one of this nation's primary sources of agricultural technology for the humid tropics, has been firmly established. The International Programs Office of IFAS, including the Center for Tropical Agriculture, is responsible for coordinating efforts aimed at helping to meet the needs of developing tropical countries for experienced technical assistance personnel and applicable quality training of their own people.

The agricultural programs of the University of Florida have, without question, been a major contributing factor in the development of Florida's multi-billion dollar agricultural industry. The resources of these education, research and development programs are committed to assisting all segments of the agricultural industry with a more complete development of Florida's agricultural potential.

NUCLEAR SCIENCES

The program in Nuclear Science is a coordinated program in research and teaching involving departments and sections of departments from several colleges. Particularly active in the program are the Department of Nuclear Engineering Sciences, the Division of Biological Sciences, and sections from the Departments of Animal Science, Botany, Chemistry, Microbiology, Physics and Radiology.

Established as the result of a special act of the 1957 Legislature, and housed in a Nuclear Sciences Center, the program is designed to permit the maximum use of outstanding and costly facilities for multidisciplinary research and teaching.

Special facilities available at the University include a 100 KW training reactor, a four Mev Van de Graaff Accelerator, several neutron generators, subcritical assemblies, a whole-body radiation detector, and five multicurie irradiators with source strengths ranging from 400 to 110,000 curies of radioactivity.

The program in Nuclear Science is headed by a director who serves to coordinate and promote research and teaching in the nuclear field throughout the University. The director is also responsible for the safety program which is carried

out by a Radiation Control Committee made up from scientists from the departments using sources of radiation, and a Radiation Control officer who is responsible for the operational details of the safety program.

The nuclear program as now constituted presents an unusual opportunity for qualified staff and students to pursue vital investigations in one of the very rapidly expanding areas of science and technology.

Admissions

APPLICATION FOR ADMISSION

Application for admission to any College, School or Division of the University must be made to the Admissions Section of the Office of the Registrar on the forms prescribed and by the dates indicated below. It is quite proper to correspond with Deans, Directors or Department Chairmen but such contact with University officers does not in any way eliminate the necessity for filing a formal application in the Office of the Registrar by the dates specified.

How to Apply: *An applicant should address a request to the Admissions Section, Office of the Registrar, University of Florida asking for application forms. Forms and directions for completing applications vary with the level of entry at the University and the applicant should indicate that forms are being requested for admission as a Freshman, Undergraduate Transfer, Graduate, Law, Medical, or Special student, as the case might be.*

GENERAL STATEMENT

The University encourages applications from qualified applicants from all cultural, racial, religious, and ethnic groups.

A brief summary of the general requirements for admission or readmission to any college or division of the University is given below:

1. A satisfactory academic record
2. Satisfactory scores on achievement tests or examinations
3. A satisfactory conduct record

The specific requirements for readmission (at the same or a different level) of a student previously enrolled at the University of Florida are given in the STUDENT REGULATIONS section of this catalog. Consult the INDEX for page number.

The specific requirements for admission to the University of Florida for the first time as a Freshman, Undergraduate Transfer, Graduate, Law, Medical, or Special student may be found in the appropriate sections which follow. **It should be understood, however, that minimum requirements are given and that admission to the University is a selective process. The satisfaction of minimum requirements does not automatically guarantee admission.**

The admission requirements have been arrived at after a very careful study of the experiences of thousands of students over a long period of years. In every case minimum requirements have evolved from studies of student performance at the University of Florida. These studies have had as a primary objective the identification of factors that would indicate reasonable chance for successful completion of University of Florida work.

The University Admissions Committee is the agency responsible for administering all admissions to the University and its various components.

Students who are planning to enter the University of Florida for the first time will be considered for admission as follows:

1. *Beginning Freshmen* —students who have never attended college. (See following section, ADMISSION AS A FRESHMAN)
2. *Undergraduate Transfers*—students who have previously attended any college or university, regardless of amount of time spent in attendance or credit earned, but who have not received a bachelor's degree. (See following section, ADMISSION AS A TRANSFER STUDENT TO UNDERGRADUATE SCHOOLS AND COLLEGES)
3. *Graduate Students* —candidates for Master's or Doctor's degrees. (See following section, ADMISSION TO GRADUATE SCHOOL)

4. *GENESYS Students* —candidates for admission to the Graduate Engineering Education System program of the College of Engineering. (See following section, ADMISSION TO THE GRADUATE ENGINEERING EDUCATION SYSTEM)
5. *Law Students* —candidates for admission to the College of Law. (See following section, ADMISSION TO THE COLLEGE OF LAW)
6. *Medical Students* —candidates for admission to the College of Medicine. (See following section, ADMISSION TO THE COLLEGE OF MEDICINE)
7. *Special Students* —applicants who do not fall in one of the above categories. (See following section, ADMISSION AS A SPECIAL STUDENT)
8. *Transient Students* —applicants who wish to enroll for one term only in order to complete work for transfer back to parent institution. (See following section, ADMISSION AS A TRANSIENT STUDENT)

ADMISSION AS A FRESHMAN

(APPLICANTS WHO HAVE NEVER ATTENDED COLLEGE)

When to Apply: **No applications will be considered for the Freshman Class more than one year in advance of the date on which entrance is sought. The best time to apply is the early part of the senior year in Secondary School. The deadline for receipt of applications for September is March 1. Notification of admission or denial will be given to all applicants by early April. The deadlines for receipt of applications for other terms are given in the University Calendar.**

Admission of students is on a selective basis. The availability of community junior colleges and other state universities in Florida has caused the Board of Regents to assign to the University of Florida a role in the total state system of higher education which demands that the entering Freshman Class be limited in number. Such limitation does not prevent students from attending the upper division and professional schools of the University since they may attend junior colleges or other universities and, if qualified, subsequently transfer to the University's upper division colleges in accordance with rules printed elsewhere in this Catalog.

Other than through the Advanced Placement Program of the College Entrance Examination Board, the University does not accept college credits earned prior to graduation from secondary school.

The requirements for admission set forth below are designated to give priority to those applicants whose potential on the basis of their record indicates the greatest likelihood of success and the obtaining of maximum benefits from the University College program at the University of Florida.

A. Requirements for admission—Florida Students

For consideration a student must meet the following minimums:

1. Graduation from an accredited secondary school.
2. Twelve academic units (English, Foreign Language, Mathematics, Science, and Social Studies)
3. A "C" average in academic courses.
4. A score in the top 40% (total score of 300) on the Florida Twelfth Grade Tests.
5. A record of good conduct. Major or continuing difficulty with school or other authorities may make an applicant ineligible regardless of his academic qualifications.

A student's total high school record is a significant factor in determining whether he will be selected for admission. Not only his grades and his scores on the Florida Twelfth Grade Test, but the educational objective and pattern of courses taken in

high school, rank in class, school's recommendation, and the personal record are all important in projecting a student's potential for successfully meeting the academic standards of the University of Florida.

Composite pictures of Recent Freshman Classes at the University of Florida indicate that approximately 70% score between 380-495 on the Florida Twelfth Grade Test which places them in the top 20% of all secondary high school seniors. Approximately 50% of each entering class has earned a "B" or better average in high school academic subjects. While there is no minimum grade average or test score which in itself assures a student of admission or success in college, prospective freshmen are urged to discuss the meaning and implication of these data with their school counselors before deciding whether to apply for admission to the University of Florida.

B. Requirements for admission—Non-Florida Students.

Because of a limited entering freshman class, only a small number of highly qualified students from states other than Florida may be admitted. The minimum requirements for consideration are essentially the same as for Florida students except that scores of at least 500 on each section of the Scholastic Aptitude Test of the College Entrance Examination Board are expected. In addition, each out of state student must achieve an academic average of "B" or better and should rank in the top fifth of his class.

Candidates' Reply Date. Freshmen admitted for the September class must indicate their enrollment plans by May 1.

Advance Housing Payment. Entering Freshmen are required to pay their housing contract at the time they give notice of their enrollment plans. This payment is non-refundable after May 1.

Early Decision for Superior Students. Students with superior secondary school records (academic average at least 3.5) and Junior year high school SAT test scores (approximately 600 each on the verbal and mathematics sections) may apply for early decision. The student must certify that this is his only application and this statement must be supported by the signatures of his parents and appropriate school official. The completed application must be received by November 1 and, if admitted, the student must make his commitment to attend the University of Florida, accompanied by his housing payment, by December 1.

All Freshman applicants are considered for admission to the University College.

ADMISSION AS A TRANSFER STUDENT TO UNDERGRADUATE SCHOOLS AND COLLEGES

(APPLICANTS WHO HAVE ATTENDED ANY COLLEGE OR UNIVERSITY, REGARDLESS OF THE AMOUNT OF TIME SPENT IN ATTENDANCE OR CREDIT EARNED, ARE CONSIDERED AS TRANSFER STUDENTS.)

When to Apply: Applications may be submitted not more than one year in advance and applicants are strongly urged to apply at least six months prior to the date they plan to enter. Applications will not be accepted after the deadline date for the term as indicated in the University Calendar published in this catalog. The applicant who waits until the last possible date to file his application may find that he is unable to furnish the necessary supporting records in time to permit a decision for the term in which he desires to enter.

A transfer applicant should refer to the General Information section of this catalog which deals with the organization of the University for an explanation of the University College (Lower Division) and the Upper Division.

The University of Florida accepts for transfer credit only those courses completed at other accredited institutions with grades of "C" or higher which are acceptable in the curriculum for which the student desires to enroll.

A. Requirements for admission to the University College.

1. An applicant must have been eligible for admission to the University College as a beginning Freshman in order to be considered for admission to the University College as a transfer student.

2. Good Standing. An applicant must be in good standing and eligible to return to any institution previously attended. A student who for any reason will not be allowed to return to any institution attended cannot be considered for admission to the University of Florida.
3. Satisfactory Record. No application will be considered unless the complete official transcripts of all the applicant's undergraduate work are in the possession of the Admissions Section and no transcript will be accepted as official unless it is received directly from the Registrar of the institution in which the work was done. Official supplementary transcripts are required, as soon as they are available, for any work completed after making application. An applicant must have an average of "C" or higher (as computed by the University of Florida) on all work attempted at each institution previously attended. An average of "C" or higher is required for graduation from the University of Florida and one who has failed to maintain this average at other institutions need not apply. Regardless of average, courses completed at other institutions must reasonably parallel the curriculum of the University of Florida.
4. Satisfactory Test Scores. An applicant must present satisfactory scores on an acceptable general ability test.
5. Satisfactory Conduct. An applicant must have a satisfactory record of conduct. Regardless of other qualifications, an applicant who has experienced difficulty with school or other authorities because of improper conduct may find his application disapproved.

B. Requirements for admission to an Upper Division College.

In addition to all but Item 1 of the requirements listed above for admission to the University College, an applicant for admission to an Upper Division college must also satisfy the following:

1. Advanced Standing Credit. An applicant must present a minimum of 64 semester hours of acceptable college courses, not more than four of which are in Military Science or Physical Education, as credit for advanced standing. *NOTE:* An applicant who has graduated from one of the Florida public junior colleges in a university parallel program with at least an overall "C" average for all college work attempted and whose record certifies that the general education requirements (involving not less than 36 semester hours of academic credit) of the Junior College have been satisfied will be considered to have met the advanced standing credit requirement. Such students may be required to take certain additional preprofessional courses not available at the Junior College; however, these courses will not reduce the number of credits required in the Upper Division for a degree. No more than 64 semester hours of credit transferred from or through a junior college may be applied toward a University of Florida degree.
2. Specific Course Requirements. An applicant must present the courses listed as required for admission by the Upper Division college of the applicant's choice, or acceptable substitutes, as part of the courses offered for advanced standing credit. Upon recommendation by the Upper Division college, an applicant lacking some of the specific requirements may be permitted to enroll in that college and complete them if he meets all other requirements for admission; however, such courses may not be used to reduce the number of credits required in the Upper Division for a degree.

NOTE: Some Upper Division colleges have established quotas because of limitations of space and facilities. Applicants for admission as transfer students meeting the admission requirements will be considered for admission within these established quotas.

Other than through the Advanced Placement Program, the University does not accept college credits earned while enrolled in high school.

ADMISSION TO THE GRADUATE SCHOOL

When to Apply: **Applications can be accepted as late as the final date listed in the University Calendar. Because the final decision on admission to Graduate study has to be made by the Graduate Selections Committee of the various colleges and**

time is required to prepare the materials for their consideration, it is strongly urged that applications be made well in advance of this final date. An applicant planning to enter Graduate School immediately following receipt of his bachelor's degree is urged to file application at the beginning of, or during, his last quarter or semester.

Application for admission to the Graduate School must be made to the Admissions Section, Office of the Registrar on forms supplied by that office and at the times stipulated in the University Calendar. Applications which meet minimum standards for admission are referred to the graduate selection committees of the various colleges and divisions for approval or disapproval.

No application will be considered unless the complete official transcripts of all the applicant's undergraduate and graduate work are in the possession of the Admissions Section and no transcript will be accepted as official unless it is received directly from the Registrar of the institution in which the work was done. Official supplementary transcripts are required, as soon as they are available, for any work completed after making application.

All foreign students whose native tongue is not English making application for admission to the Graduate School of the University of Florida must present their scores on TOEFL (Testing of English as a Foreign Language). Each applicant is asked to write TOEFL, Educational Testing Service, Princeton, New Jersey, U. S. A., requesting a Bulletin of Information and registration form. It is important to remember that final consideration *can not* be granted a foreign student's application for admission until his scores on this test are received by: Admission Section, Office of the Registrar, University of Florida, Gainesville, Florida, U. S. A.

In general, no student who is a graduate of a nonaccredited institution will be considered for graduate study in any unit of the University.

Undergraduate Record—Unqualified admission to the Graduate School is dependent upon the presentation of a baccalaureate degree from an accredited college or curriculum with an average of B for the junior and senior years. In some units of the Graduate School and on the more advanced levels of graduate study, an undergraduate average considerably above B may be required. In some units (see the following two paragraphs) admission may be considered with an undergraduate average slightly below B. College graduate admission selection committees take into account not only the general grade average, but the distribution of work and the quality and extent of preparation for the graduate program which the student proposes to undertake.

The minimum undergraduate grade average acceptable for admission to programs leading to the degrees of Master of Arts in Education and Master of Education is 2.75. Master of Arts in Physical Education and Health, and Master of Physical Education and Health is 2.5, calculated on a basis of 4.0 as the highest possible average and covering the last two years of undergraduate work (at least 60 credit hours).

In the College of Agriculture, admission to graduate study is normally limited to those students who have maintained at least a 2.75 grade-point average in their upper-division work and 3.0 in their major subject. For students with an undergraduate major in general agriculture, the minimum upper-division average is 2.85. In exceptional cases, where a candidate has demonstrated in some other way his fitness to do graduate work, as, for instance, outstanding achievement since earning the bachelor's degree, he may be considered for admission. While the general admissions requirements described above apply to both master's and doctoral candidates, it should be noted that doctoral candidates must meet certain additional requirements which vary according to the programs established by the departments and colleges. Furthermore, it is desirable for students planning to enter certain colleges and departments to have a reading knowledge of one foreign language.

Graduate Record Examination—A satisfactory average score on the Graduate Record Examination is required for admission. Each applicant for admission must submit scores on the aptitude test of the GRE, but either at the request of the department concerned or on his own volition, the applicant is encouraged to submit in addition the score on one or more advanced subject-matter test of the GRE. The scores on all tests taken will be weighed in regard to admission.

The GRE is given six times a year—in October, December, January, February, April, and July—at a great many locations in the United States, including Gaines-

ville, Florida. To determine exact dates and the most convenient locations, students should write to the Educational Testing Service, Princeton, New Jersey. Applications are required several weeks prior to the examination, and scores are received about a month after the examination. Hence, it is necessary to apply for the GRE in early September for admission in January, in early December for admission in March, in early January for admission in June, and in early March for admission in September. Other examinations are given for which application must be made in November and May but the ones listed above are correlated with admission deadlines.

Students enrolled in the Graduate School prior to establishment of the GRE requirement for admission (June, 1956) are permitted to complete the degree on which they were working. However, if the student has not been registered for graduate work at the University for seven years, or if he wishes to work toward a second graduate degree, he must submit satisfactory GRE scores before readmission.

ADMISSION TO THE GRADUATE ENGINEERING EDUCATION SYSTEM (GENESYS)

When to Apply: **The Graduate Engineering System (GENESYS) is a part of the College of Engineering and as such follows the regular University Calendar. Applications can be accepted as late as the final date listed in the University Calendar, however since the record of all applicants for GENESYS must be reviewed by the College of Engineering and time is required to assemble the necessary transcripts and test scores, it is strongly urged that application be made well in advance of the final date.**

All applicants seeking to enroll for credit in courses through GENESYS must secure admission to the University of Florida. Application for admission must be made to the Admissions Section, Office of the Registrar, University of Florida on forms obtained from the Resident Director of GENESYS, Cape Canaveral, Orlando, Daytona Beach or West Palm Beach, Florida. No application will be considered unless complete official transcripts of all the applicant's undergraduate and graduate work are in the possession of the Registrar and no transcript will be accepted as official unless it is received directly from the Registrar of the institution in which the work was done.

Applicants for GENESYS may be admitted initially to the Graduate School or to the College of Engineering as post-graduate students depending upon the applicant's qualifications and objectives. In order to be admitted to the Graduate School the GENESYS applicant must satisfy all admission requirements established by the Graduate School (see Admission to the Graduate School section of this catalog). Briefly stated these requirements include the presentation of a baccalaureate degree from an accredited college or curriculum with an average grade of "B" for the junior and senior years; a satisfactory score on the Graduate Record Examinations; and the recommendation of the Graduate Selection Committee of the College of Engineering.

Applicants for GENESYS who either fail to fully meet the requirements for admission to the Graduate School or who do not desire to work for a graduate degree may be admitted to the College of Engineering as post-graduate students. Such students may subsequently be admitted to the Graduate School by removing deficiencies, if any, in their qualifications. Applications will be considered on the basis of the applicant's overall record. The basic requirement for admission to GENESYS as a post-graduate student in the College of Engineering is the possession of the baccalaureate degree in engineering from an accredited college or curriculum. Although test scores from the Graduate Record Examinations are not required, applicants are strongly advised to submit scores on both the aptitude test and the appropriate advanced subject-matter sections of the GRE as evidence of their qualification for admission. Satisfactory scores on the GRE will be required for subsequent admission to the Graduate School.

ADMISSION TO THE COLLEGE OF LAW

When to Apply: **Applications can be accepted as late as the final date listed in the University Calendar. Since time is required to assemble the transcripts**

and test scores necessary, it is strongly urged that the applicant file his application at the beginning of, or during, the last quarter or semester of his program for the Bachelor's degree.

Beginning Students: All applicants for admission to the College of Law must have received a baccalaureate degree from a regionally accredited college or university and achieved a satisfactory score on the *Law School Admission Test.*

The minimum acceptable score on the Law School Admission Test required for admission varies with the total grade point average achieved by the applicant on *all* college work attempted by the applicant prior to the receipt of the bachelor's degree. The lower the grade point average, the higher the Law School Admission Test score must be to qualify for admission. Grade point average is computed by the University of Florida system, in which each quarter hour of A is allotted four points, B three points, C two points, D one point, and failures or incompletes zero points. The sum of the grade points so computed is divided by the sum of *all* hours attempted. The average thus derived determines the minimum Law School Admission Test score for the applicant. An appropriate adjustment in the test score will be made in cases where the score submitted is the result of retaking the test.

Advanced Standing Students: For information on admission to the College of Law with advanced standing see the College of Law Catalog.

ADMISSION TO THE COLLEGE OF MEDICINE

***When to Apply:* Because the number of places in the first year class of the College of Medicine is limited, it is important that a candidate make application as early as possible during the Summer and Fall of the year preceding his intended date of entry.**

Personal qualities of high order—character, responsibility and maturity—are the primary requirements for admission. The student must have demonstrated superior intellectual achievement. A bachelor's degree is strongly recommended. The quality of the academic background, as well as the performance of the student in relation to the load attempted, will be weighed. A genuine interest in human welfare is important. Efficient methods of study and effective powers of reasoning are essential.

The College admits both men and women. A limited number of out-of-state students, in proportion to the number in the University as a whole, may be admitted. Applicants over the age of thirty rarely will be considered. No applications from persons over thirty-five will be accepted. Students who have failed academically or are ineligible to continue in another medical school will not be admitted.

Applications from students who are presently enrolled in another medical school will be considered provided (1) the student is eligible to continue in his present medical school, and (2) the school he is now attending is a member of the Association of American Medical Colleges. Applications will also be considered from students who have successfully completed work at an accredited two-year medical school.

Prospective applicants should take the Medical College Admissions Test by the spring preceding the submission of the application. A personal interview will be required for final acceptance.

Graduate students who are candidates for the Ph.D. degree in medical sciences should apply through the Graduate School.

(See also more detailed description in the College of Medicine catalog.)

ADMISSION AS A SPECIAL STUDENT

***When to Apply:* Each application for admission as a special student must be reviewed by the University Admissions Committee. Applications cannot be considered if they are received after the dates specified in the Catalog; and it would be desirable for a person considering application as a special student to initiate such an application at least three months in advance of the term he wishes to enter, in order to allow time for additional evidence to be presented if it should be requested by the Admissions Committee.**

Special students may be admitted to the various schools and colleges of the Upper Division only by approval of the University Admissions Committee. Each case will be considered on an individual basis. Applications for admission as a special student must include: (1) records of previous educational experience (high school or college transcripts); (2) a statement as to the type of studies to be pursued; (3) a brief statement of the reason or reasons for selecting a special program other than a regular one; (4) satisfactory evidence of ability to pursue these studies—for example, a student to enroll as a special student for some technical courses and who feels qualified to do so by reason of employment or other experience should submit a brief description of this experience; (5) satisfactory scores on such ability or achievement tests as may be prescribed in individual cases by the University Admissions Committee.

ADMISSION AS A TRANSIENT STUDENT

When to Apply: **Applications should be submitted at least two months in advance and will not be accepted after the deadline date for the term as indicated in the University Calendar published in this catalog. Applicants should clearly indicate on all correspondence with the Admissions Office that enrollment as a transient student is being requested.**

Subject to availability of faculty, space and facilities, a regular undergraduate student in good standing at another accredited collegiate institution may be permitted to enroll at the University of Florida for one term only as a transient student in order to complete work to be transferred back to the parent institution. Each applicant will be required to furnish a statement of good standing from the institution currently attended. No evaluation will be made of work previously completed by the student. It is the applicant's responsibility to secure such approval as may be required by the parent institution.

Enrollment as a transient student in no way implies future admission as a regular student to the University of Florida.

ADMISSION INFORMATION FOR VETERANS ADMINISTRATION, SELECTIVE SERVICE, AND SOCIAL SECURITY

The University of Florida is approved for the education and training of veterans under all public laws now in effect, i.e., Chapter 31, Title 38, U. S. Code (Disabled Veterans), Chapter 34, Title 38, U. S. Code (Cold-War G. I. Bill), and Chapter 35, Title 38, U. S. Code (Children of Deceased or Disabled Veterans). Students who may be eligible for educational benefits under any Veterans Administration program are urged to contact the local Veterans Administration representative or the Veterans Administration Regional Office, P. O. Box 1437, St. Petersburg, Florida, well in advance of the date of their registration. Students expecting to receive benefits under one of these programs must file with the Office of the Registrar their Certificate of Eligibility which is issued by the Veterans Administration. No certification can be made until the Certificate of Eligibility is on file. Benefits are determined by the Veterans Administration and the University certifies according to their rules and regulations.

The Office of the Registrar will submit enrollment certification to the Selective Service System if the student has submitted his selective service number according to Selective Service System regulations. The Selective Service System will also be notified when the student is no longer enrolled or is not eligible to continue and/or has completed requirements for his degree.

Inquiries relating to Social Security Benefits should be directed to the student's local Social Security Office. The Office of the Registrar will submit enrollment certificates issued by the Social Security Administration for students eligible to receive educational benefits under the Social Security Act, providing the student registers for twelve quarter hours or more.

ADMISSION INFORMATION FOR FOREIGN STUDENTS

All foreign students whose native tongue is not English making application for admission to the University of Florida must present their scores on TOEFL (Testing of English as a Foreign Language). Each applicant is asked to write TOEFL, Educational Testing Service, Princeton, New Jersey, U. S. A., requesting a Bulletin of Information and registration form. It is important to remember that final consideration *cannot* be granted a foreign student's application for admission until his scores on this test are received by: Admission Section, Office of the Registrar, University of Florida, Gainesville, Florida, 32601, U. S. A.

Expenses

APPLICATION FEE

Each application for admission to the University must be accompanied by an application fee of $10.00. Application fees are nonrefundable. Further instructions will be found in the Admissions section of this catalog and in the College of Law and the College of Medicine catalogs.

GENERAL

STUDENTS SHOULD BRING SUFFICIENT FUNDS, OTHER THAN PERSONAL CHECKS TO MEET THEIR IMMEDIATE NEEDS. Personal checks will be accepted for the exact amount of fees.

CLASSIFICATION OF STUDENTS — FLORIDA OR NON-FLORIDA

For the purpose of assessing fees, applicants shall be classified as Florida or non-Florida students. A Florida student is a person who shall be a citizen of the United States or a resident alien and who shall have resided and had his habitation, domicile, home and permanent abode in the State of Florida for at least twelve (12) months immediately preceding his current registration. In applying this regulation, "applicant" shall mean a student applying for admission to the institution if he is married or 21 years of age, or, if he is a minor, it shall mean parents, parent, or legal guardian of his or her person.

In all applications for admission by students as citizens of the State, the applicant, if married or 21 years of age, or, if a minor, his parents or legal guardian shall make and file with such application a written statement under oath that such applicant is a bona fide citizen and resident of the State and entitled as such to admission upon the terms and conditions prescribed for citizens and residents of the State.

In the determining of a Florida resident for purposes of assessing fees, the burden of proof is on the applicant. Under the law an applicant can change his place of residence from another state to the State of Florida only by actually and physically coming into the State and establishing his residence with the intention of permanently residing within the State. The domicile or legal residence of the wife is that of the husband, and the legal residence of a minor is that of the parents, parent, or legal guardian of his person.

A non-Florida student may apply in writing for reclassification prior to any subsequent registration under the provisions set forth below. To qualify for reclassification as a Florida student, a person (or if a minor, his parents) shall have resided in Florida for twelve (12) months, shall have filed a declaration of intent to become a resident of the State, and shall be registered to vote in the State. An alien shall have resided in Florida for twelve (12) months and must present U. S. Immigration and Naturalization certification that he is a resident alien. If the application is supported by evidence satisfactory to the University that the student then qualifies as a Florida student, his classification will be changed for future registrations.

REGISTRATION AND INSTRUCTIONAL FEES

The University Calendar appearing at the front of this catalog sets forth the beginning and ending dates of each quarter.

THE FOLLOWING FEES AND CHARGES ARE PROPOSED AT THIS TIME. HOWEVER, SINCE THE CATALOG MUST BE PUBLISHED CONSIDERABLY IN ADVANCE OF ITS EFFECTIVE DATE IT IS NOT ALWAYS POSSIBLE TO ANTICIPATE CHANGES AND THE FEE SCHEDULE MAY BE REVISED. EVERY EFFORT WILL BE MADE TO PUBLICIZE CHANGES FOR

ANY QUARTER IN ADVANCE OF THE REGISTRATION DATE FOR THAT QUARTER.

Fees are payable on the dates listed in the University of Florida Calendar appearing at the front of the Catalog or the dates shown on statements sent those participating in Advance Registration. Payment of fees is an integral part of the registration process. Registration (including payment of fees) must be completed on or before the proper due date. Mail payments must be RECEIVED at Student Accounts, The Hub, by this date. All payments received on or after the due date are subject to a $25.00 Late Fee for Full-Time Students and $15.00 for Part-Time Students.

Fees charged are based on the classification of a student as Florida or Non-Florida, Full-Time or Part-Time, Graduate, Post-Baccalaureate, or Undergraduate.

1. Students who register as freshmen, sophomores, juniors, seniors, or in a fifth-year baccalaureate program will be assessed the undergraduate registration fee.
2. Students who register in the Graduate School, as post-baccalaureate students or in the College of Law will be assesed the graduate registration fee.
3. Special transient students will be assessed the graduate registration fee for all courses taken if registered for a graduate course (600 level or above). The undergraduate registration fee will be assessed only if the student is registered for all undergraduate courses (500 level or below).

Unless otherwise noted, the fees for each quarter include fees for Matriculation, Student Health Services, Student Activities, and a general Building Fee.

SUMMARY OF EXPENSES FOR FULL-TIME UNDERGRADUATE FLORIDA STUDENTS NOT ENROLLED IN THE COLLEGE OF MEDICINE

	Quarter	Three Quarters
TUITION	$150.00	$ 450.00
FOOD	220.00	660.00
HOUSING	135.00	405.00
BOOKS	60.00	180.00
MISC.	105.00	315.00
	$670.00	$2,010.00

NOTE: Out-of-State undergraduate students should add $300.00 to quarterly estimate and $900 to academic year estimate.

FEES ARE ASSESSED AS FOLLOWS:

Undergraduate Students

A FULL-TIME (seven hours or more) FLORIDA STUDENT will pay a fee of $150.00 for each quarter for which he is enrolled.

A FULL-TIME (seven hours or more) NON-FLORIDA STUDENT will pay fees of $450.00 for each quarter for which he is enrolled. ($150.00 Registration plus $300.00 Non-Florida Fee).

A PART-TIME FLORIDA STUDENT, enrolled for six credit hours or less, will pay, per quarter, a fee of $14.00 per credit hour. He will not be entitled to Student Activity or Infirmary privileges.

A PART-TIME NON-FLORIDA STUDENT enrolled for six credit hours or less will pay, per quarter, a fee of $39.00 per credit hour ($14.00 plus $25.00 Non-Florida Fee). He will not be entitled to Student Activity or Infirmary privileges.

Graduate Students, Post-Baccalaureate Students, and Students Enrolled in the College of Law

A FULL-TIME (seven hours or more) FLORIDA STUDENT will pay a fee of $175.00 for each quarter for which he is enrolled.

A FULL-TIME (seven hours or more) NON-FLORIDA STUDENT will pay fees of $475.00 for each quarter for which he is enrolled. ($175.00 Registration plus $300.00 Non-Florida Fee).

A PART-TIME FLORIDA STUDENT, enrolled for six credit hours or less, will pay, per quarter, a fee of $16.00 per credit hour. He will not be entitled to Student Activity or Infirmary privileges.

A PART-TIME NON-FLORIDA STUDENT enrolled for six credit hours or less will pay, per quarter, a fee of $41.00 per credit hour ($16.00 Registration plus $25.00 Non-Florida Fee). He will not be entitled to Student Activity or Infirmary privileges.

A student, FLORIDA OR NON-FLORIDA, enrolled in the GRADUATE SCHOOL for THESIS ONLY, not to exceed six hours credit, will pay a fee of $16.00 per credit hour, with a minimum fee of $16.00. He will not be entitled to Student Activity or Infirmary privileges.

COLLEGE OF LAW

Application Fee. Applications for admission of non-University of Florida students to the College of Law must be accompanied by an application fee of $10.00. This fee is nonrefundable.

Acceptance Deposit· Beginning students who have been selected for admission must forward an acceptance deposit of $50.00 to the College of Law prior to January 1 for the following spring class and May 1 for the following fall class. Beginning students selected after these dates and applicants for admission with advanced standing must send in this deposit upon receipt of the official Notice of Admission. The acceptance deposit will be credited toward payment of course fees for the first quarter to which the applicant is admitted. It cannot be credited toward a subsequent admission. It is not refundable.

For further information see the *College of Law Catalog.*

COLLEGE OF MEDICINE

Application Fee. An application fee of $10.00 must accompany each application for admission to the College of Medicine.

Acceptance Deposit. A deposit of $50.00 must be forwarded to the College of Medicine within two weeks of the receipt of notice of acceptance for admission. This deposit will be credited toward payment of course fees for the first quarter to which the applicant is admitted. It cannot be credited toward a subsequent admission. It is refundable only until March 1 of the year in which that quarter begins. The College of Medicine Acceptance Deposit is deducted from any registration and course fees refunded to medical students.

A FLORIDA STUDENT enrolled in the MD program of the College of Medicine will pay a fee of $900 per year, payable in three installments of $300 each in September, January and March.

A NON-FLORIDA STUDENT enrolled in the MD program of the College of Medicine will pay a fee of $2,100 per year, payable in three installments of $700 each in September, January and March.

The fees shown are due and payable during the regularly scheduled registration periods in the months shown above. See the University Calendar at the front of this catalog for applicable dates.

For further information see the *College of Medicine catalog.*

GRADUATE ENGINEERING EDUCATION SYSTEM (GENESYS)

A student enrolled in GENESYS will pay a fee of $40.00 per credit hour. The maximum fee charged will be $250.00.

Students enrolled in GENESYS are not entitled to Student Activity or Infirmary privileges.

University policies concerning application and late fees also apply to GENESYS, except that the $25.00 late fee will not be assessed during the first week of classes.

SPECIAL FEES

Application Fee for Comprehensive Examination. A nonrefundable fee of $1.00 is payable on the day of application for a comprehensive examination in one of the basic courses of the University College program. Applications are necessary only when the student is not currently registered in the course concerned. Forms and instructions may be secured from the Registrar. Fees are payable at Student Accounts, The Hub.

Audit Fee. A regularly enrolled full-time student may audit courses without payment of an additional fee. Others must pay a fee of $25.00 per course per quarter or term. Auditor's permit forms may be obtained in the Office of the Registrar. Fees are payable at Student Accounts, The Hub.

Graduate Record Examination. The Aptitude Test of the Graduate Record Examination is required for admission to the Graduate School. A fee of $8 covers the cost of this examination. Students who take one of the Advanced Tests of the Graduate Record Examination in combination with the Aptitude Test pay a fee of $16. These fees are payable to the Educational Testing Service, Princeton, New Jersey 08540.

Graduate School Foreign Language Test Fee. All students wishing to be certified as proficient in a reading knowledge of French, German, Russian, or Spanish, must take the Educational Testing Service (ETS) Graduate School Foreign Language Tests. A fee of $10 covers the cost of each examination. This fee is payable to the Educational Testing Service, Princeton, New Jersey 08540.

Graduation Fee. Each candidate for a Bachelor's degree must make application for the degree in accordance with the dates set forth in the University Calendar. The graduation fee of $10.00 is payable at the time of application. If the candidate applies for two Bachelor's degrees at the same commencement, the fee will be $15.00. In the event that the applicant does not meet the requirements for graduation at the time specified in the original application for the degree, he shall be charged a fee of $5.00 for each subsequent application for the same degree.

Each candidate for a graduate or professional degree must make application for the degree in accordance with the dates set forth in the University Calendar and pay, at the time of application, a fee of $20.00. In the event that the applicant does not meet the requirements for graduation at the time specified in the original application he shall be charged a fee of $5.00 for each subsequent application for the same degree.

Transcript Fee: University transcripts may be obtained from the Office of the Registrar at a charge of $1.00 per copy.

PREPAYMENTS — UNIVERSITY HOUSING

Beginning freshmen receive housing contracts automatically when admission is approved. They are required to prepay rent for the first quarter at that time. This rental prepayment is refundable under certain conditions as set forth in the housing contract.

Applications for assignment to University housing facilities for single students other than beginning freshmen or for married students must be accompanied by a payment of $10.00. This payment is nonrefundable. It will be credited against the first rental payment.

DEPOSITS

ROTC Deposit. A deposit of $20.00 is required at the time of registration of any student enrolling in any course in Military or Air Science. The deposit will be refunded upon the return of all Government property in satisfactory condition.

Dissertation Deposit. A deposit of $25.00 is made to cover the publication cost of the dissertation. See the *Graduate School Catalog* for time of payment.

REFUND OF FEES

Fees will be refunded under certain conditions upon presentation at Student Accounts, The Hub, of a Registration Status form, issued by the Registrar, the current Certificate of Registration and the Athletic Ticket Identification card.

No refund will be made under this policy except upon proper application.

A full refund of tuition, registration and instructional fees will be made if a student withdraws from the University or if his registration is cancelled by the University on or before the final day of the drop and add period.

No refund will be made if the student withdraws after the final day of the drop and add period.

Commensurate refunds will be made to part-time students.

Deductions will be made from refunds for unpaid accounts due the University.

PAST DUE STUDENT ACCOUNTS

All student accounts are due and payable at Student Accounts, The Hub, at the time such charges are incurred.

Delinquent accounts will be considered sufficient cause for cancellation of registration, as University regulations prohibit registration, graduation, granting of credit or release of transcript for any student whose account with the University is delinquent.

Student Affairs

For a more complete description of student life and of University regulations pertaining specifically to Student Affairs, see *Student Handbook*.

VICE PRESIDENT FOR STUDENT AFFAIRS

The Vice President for Student Affairs serves as a staff officer, advisory to the President, in all matters pertaining to students. As chief student personnel officer he serves as a liasion between the Office of the President and other administrative offices that deal with non-classroom activities of students and with the self government processes of student groups.

The Vice President for Student Affairs works toward providing on the campus an academic climate that is favorable to the spirit of serious inquiry and is concerned with the maintenance of good communication and working relationships among students, faculty and administrative units as they labor together for the welfare of students.

OFFICE FOR STUDENT DEVELOPMENT

The Dean for Student Development has overall responsibility for the general welfare of all students. Together with his assistants, he provides an office for personal counseling and advisement in all aspects of student growth. Particular attention is given to academic, financial, and social problems, and when necessary the student is referred to other departments, faculty or agencies. The Office consists of a Counseling and Services section as well as a section for International Students.

Fraternities and sororities are within the administrative and advisement responsibility of the Office for Student Development.

The Office has a coordinate functional relationship with the Director of Housing regarding student and staff needs within University housing facilities.

The Dean for Student Development is the first point of contact for information and assistance for interested groups and individuals outside the University on questions concerning students.

OFFICE FOR MINORITY AFFAIRS

The Office for Minority Affairs provides many services for disadvantaged students and minority groups at the University of Florida. These services include tutoring, referrals for academic advisement, counseling, financial assistance, and general guidance.

OFFICE FOR STUDENT CONDUCT

The Office for Student Conduct has the responsibility for coordination of efforts to enforce the Code of Student Conduct and such additional duties as the Vice President for Student Affairs may request him to undertake including the investigation and presentation of alleged violations of student conduct to various hearing bodies.

DIVISION OF HOUSING

The Director of Housing administers, supervises, and coordinates all programs and operations in the residence halls, the apartment villages, and the Off-Campus Housing Office. He works cooperatively with the Dean for Student Development as mentioned above.

GENERAL INFORMATION

Beginning freshmen who apply for admission to the University will receive Housing Agreements upon approval of admission. No application for housing is made by a beginning freshman.

All other students must initiate their arrangements for housing either by (1) applying to the Office of the Director of Housing for assignment to University Housing Facilities, or (2) in the case of male upperclassmen who wish to do so, obtaining accommodations in private housing. (See Off-Campus Housing Section).

All correspondence concerning applications for University Housing should be addressed to the Director of Housing, University of Florida, Gainesville. An application for residence hall space for students other than beginning freshmen may be filed at any time after an application for admission to the University has been made. However, prospective students are urged to apply as early as possible because of the housing demand.

Roommate requests can be considered if the individuals wishing to room together submit their applications on the same date, clearly indicate on their respective applications their desire to room together, and are within similar academic classifications. Any United States student interested in rooming with a foreign student should so indicate on his application.

RESIDENCE REQUIREMENTS

ALL SINGLE FRESHMAN AND SOPHOMORE STUDENTS (MEN AND WOMEN) are required to live in University Housing. ALL SINGLE UNDERGRADUATE WOMEN STUDENTS are required to live in University Housing as long as space is available. Upon written request, exceptions are made for such students as those who commute, live in Gainesville with their parents, or are married. Undergraduate men and women other than freshmen may live at their fraternity or sorority houses.

Housing contracts for all single students are for the Agreement year of four quarters (September to August), if the student is enrolled.

HOUSING ADMINISTRATION AND STAFF

ORGANIZATION—University residence halls have been designed and organized to emphasize the importance of the individual student in small-size living groups. Each hall provides opportunities for formal and informal educational programs, together with social and recreational activities. Many residents find their hall the center of their out-of-class interests. What you will find depends largely upon your own contribution to the life of your hall. Programs and activities vary from hall to hall and from year to year, since they are based on the needs and interests of the students themselves.

STAFF—In all residence halls or housing areas professionally trained counselors and part-time resident assistants are well-qualified to assist with group and individual activities, as well as with matters of personal concern to student residents. In the men's halls, student section advisers provide group leadership and guidance; in the women's halls, floor representatives serve in a similar way.

SELF-GOVERNMENT—All students in the residence halls are automatically entitled to participate in organizational activities which can play a significant part in their educational, social, and recreational life. Officers and representatives are elected to hall and area councils which govern group activities and establish standards for group living. There is full opportunity for participation in the procedures of democratic self-government and for living under the principles of the Honor Code.

In all residence halls, a small voluntary activity fee is collected and controlled by the hall organization to meet expenses of activities and programs.

ROOM FURNISHINGS—Rooms are equipped with mattresses, mattress pads, waste baskets, desks, chairs, closets, chests-of-drawers and venetian blinds. Residents are encouraged to obtain their own drapes, pictures, bedspreads, rugs, and desk lamps after arrival at the University.

LINEN SERVICE—All students assigned to residence halls are furnished a basic linen service. The charge is included in the room rent. This service entitles you to two sheets, one pillowcase, and three towels per week. Extra linens or additional items such as blankets, pillows, and desk lamps may be rented at a nominal cost.

TELEPHONE SERVICE—Room telephones are available in all of the residence halls except Murphree, Thomas, Sledd, Fletcher, and Buckman Halls in the Murphree Area. Each room telephone provides 24 hour service on campus and within the Gainesville area. Charges for long distance calls are billed monthly to the room phone by Southern Bell and residents have responsibility to pay direct to the Telephone Company. The cost for room telephones is included in the room rent.

RESIDENCE HALLS FOR SINGLE STUDENTS

Some variety in types of accommodations is provided by the University. The double room for two students is the most common type for men and women students. A limited number of single rooms is available. In several of the residence halls for men are suites for two students. Each suite consists of two connected rooms: one, a bedroom; the other, a study room.

In the Twin Towers residence halls are suites for four students. Each suite includes two bedrooms, a study-kitchenette, and private bath. These accommodations with facilities for food preparations are reserved exclusively for junior, senior, and graduate students. Sections of Buckman Hall are also designated for male graduate students.

The Twin Towers, Hume Hall, Graham Area, Tolbert Area, and Yon Hall are totally air-conditioned. Other residence halls, where student rooms are not air conditioned, provide centrally located air conditioned facilities for study and recreation.

Residence halls for single students are organized in nine residential areas:

1. BROWARD HALL (women students only): The Broward complex houses 630 students. Air-conditioned facilities include a main lounge, library, recreation room, television room, cafeteria, and sundry shop. Double rooms are available and each floor has a community bathroom and study room.

2. GRAHAM AREA (co-educational): This residence complex consists of Graham Hall accommodating about 200 women students, and Simpson and Trusler Halls accommodating about 200 men students each. On each floor are community bathrooms and study rooms. A central building for use by both men and women contains a main lounge, library, recreation room, television room, snack bar and a bookstore. All student rooms are doubles.

3. HUME HALL (co-educational): This hall features two separate wings, one for 326 women and one for 326 men students. Central facilities provide a main lobby, library, recreation room, and television room. A cafeteria and dry cleaning station are also located within the area. Each floor has a community bathroom and a study lounge. All student rooms are doubles.

4. JENNINGS HALL (co-educational): Jennings provides separate wings accommodating 174 male students and 314 female students respectively. Air-conditioned central facilities include a cafeteria, main lounge, recreation room, television room, library, and sundry shop. Each floor, providing double rooms, also has community bathrooms, and air-conditioned study rooms.

5. MURPHREE AREA (men students only): Murphree, Thomas, Sledd, Fletcher, and Buckman Hall are all located in this Area—they were the first residence halls built on the University of Florida campus and represent the largest living area for about 1300 students. Suites for two, single, and double rooms are available. All rooms are equipped with lavatories. These halls are divided into separate, vertical sections, accommodating from 16 to 60 students each. There is a bath on each floor.

Yon Hall, also located in the Murphree Area, provides housing for 214 men students within the East stands of Florida Field. Yon is completely air-conditioned and has study rooms, a recreation room, and a television room. Most student rooms are doubles with a few singles and triples.

6. RAWLINGS HALL (women students only): Rawlings houses about 350 students in double rooms. Community bathrooms and study rooms are located on each floor and the air-conditioned public area includes a main lounge, library, recreation room, television room, and cafeteria.

7. TOLBERT AREA (co-educational): This area consists of Weaver and East Halls accommodating about 400 women students and Tolbert, South, and North Halls accommodating about 500 men students. Tolbert Area contains single

and double rooms with bath facilities and study rooms located on each floor. Public facilities for the area include a recreation room, television room, and library-study room.

8. TWIN TOWERS (co-educational, upperclass and graduate students only): Each Tower, one for women and one for men, accommodates approximately 400 students. These buildings are entirely air-conditioned and carpeted with a unique suite arrangement on each floor that virtually eliminates traffic past suite doors. All student rooms are suites for four including a study-kitchenette. The commons building has a social room, library, and sundry shop.

9. YULEE AREA (co-educational): The Yulee Area features three halls, Yulee, Mallory and Reid, each accomodating about 150 students. Single and double rooms are available, with each floor having bath facilities and a study room. Each of the three halls has its own lounge; a recreation room and library are located within the area. Depending upon student preferences, Reid Hall may be converted permanently for male occupancy.

Quarterly rent rates for a double room are currently between $110 and $140 per student depending on whether or not air-conditioning and telephone service are provided. The quarterly rent rate, including utilities, for the Twin Towers is currently $155 per student. All of these rates are subject to change.

APARTMENTS FOR MARRIED STUDENTS

The University operates four apartment villages for married students. To be eligible to apply for and occupy apartment housing on-campus, the following are necessary:

The married student must meet the requirements for admission to the University of Florida, qualify as a full-time student as defined by his college or school, and continue to make normal progress toward a degree as determined by the head of his college or school. (A minimum of 12 credit hours is required for a full-time undergraduate student).

The married student must be part of a family unit, defined as husband and wife with or without one or more children.

The married student must be part of a family with a combined gross annual income (including grants-in-aid, scholarships, fellowships and grants) which does not exceed, during the period of occupancy, the following maximum income limitations:

2 persons	3 & 4 persons	5 & 6 persons
$5,500.00	$6,400.00	$7,350.00

Since on-campus apartments are intended to provide relatively low-cost housing for married students, a family with a combined gross annual income in excess of the above scale cannot apply for or occupy an apartment except in unusual circumstances. Exceptions may be granted only by the Committee on Student Housing.

FLAVET VILLAGE III, of temporary frame construction, includes one and two-bedroom units which currently rent for $26.75 and $29.50 per month respectively. (These rates are subject to change). These units are equipped with basic furniture, but residents may request that it be stored if they have their own furniture. Refrigerators are available on a monthly rental basis.

CORRY AND SCHUCHT MEMORIAL VILLAGES, of modern brick, concrete, and wood construction, contain almost an equal number of one and two-bedroom apartments, with a few three-bedroom units in Corry Village only. These apartments are furnished with basic equipment in the living room, kitchen, dining area, and one bedroom. No furniture may be removed from apartments in Corry and Schucht. Rent rates (subject to change) are currently $60.00, $65.00 and $75.00 per month according to size. Some two-bedroom apartments in Corry Village currently rent for $70.00 per month. Applications for the three-bedroom units may be made only by current residents.

DIAMOND MEMORIAL VILLAGE consists of 208 apartments similar in construction, furnishings, and equipment to those in Corry and Schucht Villages. Special features include a community building with air-conditioned study-meeting room, and a study cubicle in each two-bedroom apartment. Rent rates (subject to change) are currently $60.00 and $70.00 per month for one and two-bedroom apartments respectively.

Residents in all villages must furnish their own linens, dishes, rugs, curtains, etc. Utilities are an extra expense. In Flavet Village III there is an allowable minimum electricity usage.

OFF-CAMPUS HOUSING

Private homes and privately operated rooming houses and apartments provide many accommodations for students. University student regulations are in effect for all students living off-campus.

These regulations include the special provisions that (1) all undergraduate women students must obtain from the University Housing Office permission to live off-campus before making any rental arrangements; (2) all students under 21 years of age can live only in accommodations listed by the Off-Campus Section of the Housing Office; and (3) all students must give their exact residence address at the time of registration, recording any address changes at the registrar's office within 7 days after the change is made.

Off-Campus listings are maintained in the Off-Campus Section but are not compiled for mailing since availability changes frequently. Students seeking off-campus housing should come to Gainesville one to three months before the school period to confer with the Off-Campus Section about accommodations. By writing to this section, students may obtain in advance information brochures and housing request forms.

COOPERATIVE LIVING ORGANIZATION, GEORGIA SEAGLE COOPERATIVE, AND SCHOLARSHIP HOUSE

These cooperative living groups are not administered by the University, but are each governed by their own Board. Among the qualifications for membership are scholastic ability and reference of good character. The C.L.O. is specifically operated by and for students with limited financial means for attending the University. Facilities of both organizations are located conveniently to the campus.

Application for membership in the C.L.O. should be made to the Secretary at 117 N.W. 15th Street, Gainesville. Application for Georgia Seagle is made by personal interview at 1002 West University Avenue. Requests for information regarding the Scholarship House should be addressed to Florida Student Housing and Scholarship Foundation, P.O. Box 13006, University Station, Gainesville.

FRATERNITIES AND SORORITIES

Most national fraternal groups with chapters at the University maintain their own houses adjacent to or on the campus. Freshmen are not permitted to live in fraternity or sorority houses. University student regulations are in effect for all sorority and fraternity houses.

INTERNATIONAL STUDENT AFFAIRS

The Foreign Student Office corresponds with foreign inquirers concerning the various educational opportunities and admission requirements at the University. The office coordinates closely with the Admissions Office in clearing students for admission and arranges for authorizing a United States visa. It assists in providing the reception, housing and orientation of new foreign students. In cooperation with other University offices and agencies off-campus, it provides financial assistance as available. The office serves, by counseling and direct action, as a continuous service center for foreign students in solving their problems of whatever nature. Close liaison is maintained with academic counselors.

The Assistant Dean serves also as campus contact officer for Peace Corps, VISTA, Fullbright programs, Immigration and Naturalization Service, foreign embassies and consulates.

STUDENT FINANCIAL AID

The Student Financial Aid Office functions under policies established by the Senate Committee on Student Financial Aid of which the Director of Student Financial Aid is secretary. Working in cooperation with the Office for Student Develop-

ment, student aid counselors interview students pertaining to employment, loans, grants and scholarships. This office serves as an important part of the academic and personal counseling and guidance of students seeking financial assistance. In every case an attempt is made to suggest a balance between self-support, parental help and institutional loans, grants and scholarships. In order to assess need of applicants on an equitable basis, the University of Florida participates in the College Scholarship Service of the College Entrance Examination Board. Inquiries or applications for student financial aid and scholarship awards should be addressed to the Director of Student Financial Aid.

Scholarships

Scholarships are available in limited numbers and within fund limitations. Awards are given to applicants on the basis of academic excellence, good character, leadership and financial need. Additional awards are made by donors who select the recipient directly. Hence, students are urged also to consult the resources of their home community, civic clubs, service organizations and county educators.

Employment

Employment is available to students on a part-time basis while in school. Further, those who qualify under the Higher Education Act of 1965 (College Work Study Program) may work 40 hours per week on campus or at approved home town projects one quarter of the academic year. Every effort is made to direct applicants to positions that will forward their educational goals. In general, first quarter freshmen are discouraged from seeking employment until they establish themselves academically. However, if the freshman feels he must work, then he should make an application at the Office of Student Financial Aid.

Loans

Loans are available in two forms: (1) long-term loans (including University of Florida, Federal, and State Programs); and (2) small, emergency short-term loans. The application period for long-term loans is November 1 through February 28. No student should seek a short-term loan without a repayment plan that does *not* depend on the approval of another university long-term loan.

Grants

Grants using federal funds are awarded (within fund limitations) to those students whose financial need qualifies them for consideration. Applications are not made for a grant as such, but awardees are selected from the student financial aid applications submitted during the period November 1 through February 28.

Awards

Awards are made to students in recognition of exceptional achievement in various fields of student life. In some instances these are cash grants; in others, medals, certificates or keys.

UNIVERSITY PLACEMENT AND CAREER PLANNING CENTER

The office serves as the central placement agency for the University. It is located in suite G-22, of the Reitz Student Union. Its services are available to all students and alumni of the University without charge.

The primary aim of the Center is to assist students during the course of their college program in identifying and developing realistic career goals, and obtaining positions in their chosen fields upon graduation. Similar assistance is available to Alumni who are making changes of employment.

Specific student services include:

a. Guidance and counseling in self-evaluation and career planning.
b. Assistance in developing good interview techniques.
c. Guidance in the preparation and use of resumes and letters of application.
d. Arranging campus interviews between employers and students.

e. Maintaining Qualification Records and Faculty ratings for students and alumni.

f. Providing recruiting literature and information about employers.

g. Preparing and mailing lists of job opportunities to registrants.

h. A Career Information Library with specific information about various businesses and industries, government agencies, and educational institutions is maintained.

Functions of the Center include serving as liaison between students and business firms, industrial and educational organizations, and governmental agencies seeking college educated personnel for permanent employment. The center also establishes and maintains a permanent file of applicants' qualification records, which may be updated and used at any time. It publishes bulletins listing employment opportunities and interview schedules; conducts studies of employment outlook, salary trends, and related areas; provides a listing of career related summer jobs.

Students are urged to use the services of this office for vocational and career development planning as early as possible and to establish a placement file by the end of their junior year.

J. WAYNE REITZ UNION

The J. Wayne Reitz Union is the official center of campus activities. The provision of facilities, services, and a varied program of activities available to all persons of the University "community" serves as the basic purpose of the Union. The Union is governed by a Board of Managers, consisting of eight students and six faculty members.

During May, 1967, the new J. Wayne Reitz Union building was opened. Among the facilities and services offered are music listening rooms, two art gallery areas, Arts and Crafts Center, photographic dark rooms, browsing library, a games area for bowling, billiards and table tennis, public telephones, information desk, passenger and ride wanted bulletin boards, display cases, barber shop, Union Store, talent and band file, and travel-study program consulting services. A large ballroom, an auditorium, and conference and meeting rooms are available for all University organizations. Guest rooms are available for official guests of the University, guests of students, faculty, staff, and alumni.

The Reitz Union offers a complete range of food service facilities and dining. A cafeteria and snack bar, a restaurant-dining area, and complete catering services for small, intimate groups or for a banquet for nine hundred persons are included in the building.

Of particular significance to the educational program of the University is the Student Activities Center, located on the third floor. A distinctive physical arrangement of offices and work space for Student Government, Traffic Court, all student publications, the Honor Court, and many other student groups enhances the effectiveness of the total student activities program of the University.

The Union plans and promotes many social, cultural, and recreational activities for the campus community.

Among the weekly activities are art exhibits, bridge lessons and tournaments, dancing classes, current and cultural films. Special activities such as receptions, dances, intracampus and intercollegiate bridge, billiard and bowling tournaments, music appreciation listening hours, forums and book reviews, outings to scenic spots in the state and abroad, fashion shows, international activities, picnics and special holiday parties are all a part of the Union program.

The Public Functions Office operates the Reitz Union Box Office, manages the University Auditorium, maintains the master University Activities Calendar, and offers assistance in booking and promoting to all campus organizations. It is the official contact office with the University Committee on Public Functions and Lectures.

A distinctive area of the new Union is the H. P. Constans Theater, a 464-seat facility for the dramatic group, the Florida Players, provides excellence in design and technical equipment for staging, lighting, and acoustics.

The University's Camp Wauburg, operated by the Reitz Union, is a recreational area for the exclusive use of students, faculty, and staff of the University. This area, overlooking a beautiful lake, is located nine miles south of the campus.

Facilities include a large picnic area, a recreation building, bath house, a dock with a diving board, many small outdoor fireplaces for cooking, and a playground area and equipment for volleyball, horseshoes, badminton, and other games. Other activities include swimming, boating, skiing, and fishing.

STUDENT HEALTH SERVICE

The Student Health Service provides a spectrum of medical services which includes primary medical care, preventive medicine, health screening programs and mental health consultation and counseling. These services are available to all full-time students in the university.

The service consists of an out-patient clinic and a 45 bed in-patient unit staffed by physicians, nurses, psychologists, laboratory and x-ray technicians and supporting personnel. It is housed in the Infirmary, which is centrally located on the campus.

The service is a unit of the J. Hillis Miller Health Center with its College of Medicine, Nursing and Health Related Professions. The facilities of the Health Center are available by consultation and referral through the Student Health Service. Specialty clinics are available in the Infirmary in some specialty fields.

The health fee is a part of the tuition fee paid by all students. This fee covers ordinary out-patient visits, many laboratory tests and some medications. When more complicated diagnostic study or hospitalization is required, additional charges are made. For this reason, a supplemental health insurance plan is recommended.

A medical history and physical examination and certain immunizations are required before registration at the University.

UNIVERSITY FOOD SERVICE

Food Service provides facilities in eight cafeterias and two snack bars in locations convenient to dormitories and class rooms. Students are offered high quality food at reasonable prices. It is the policy of the University to provide well-prepared food at the lowest possible cost. Students may effect a savings by participating in the voluntary meal plan which offers three meals a day, seven days a week or three meals a day five days a week (Monday through Friday) on a quarterly basis.

SPEECH AND HEARING CLINICS

The Divisions of Speech Pathology and Audiology, Department of Speech, offer services without charge to any University student who has a speech or hearing disorder. This assistance is available at any time during the year and therapy sessions are adjusted to individual schedules. The student is encouraged to visit the Clinics and to take advantage of this service. Room 436 Arts and Sciences Building.

READING LABORATORY AND CLINIC

The Comprehensive English Department sponsors the University Reading Laboratory and Clinic as a free service to students at all levels. Diagnosis and opportunities for self-improvement are offered on an individual basis in the areas of reading efficiency or speed, comprehension, vocabulary, and study habits. There are no outside assignments, grades, or course credits given. Consultative work and other services are also available to staff members. Interested persons may apply at S.W. Broward Hall during regular daytime class periods 1-9.

Student Life-Services, Facilities, Activities

STUDENT ACTIVITIES ORGANIZATIONS AND PUBLICATIONS

Student Government. Student government in the University of Florida is a cooperative organization based on mutual confidence between the student body and the faculty. Considerable authority has been granted the Student Body for the regulation and conduct of student affairs. The criterion in granting authority to the Student Body has been the disposition of the students to accept responsibility commensurate with the authority granted them. Generally speaking, the fields of student activity include regulation of extra-curricular affairs and the administration of the Honor System.

Every enrolled student, having paid his activity fee, is a member of the Student Body and has equal vote in its government.

The University authorities feel that training in acceptance of responsibility for the conduct of student affairs at the University is a valuable part of the educational growth of the individual student. The Student Body is practically a body politic, occupying its franchise under grant from the Board of Regents and subject to its continued approval.

Student government is patterned on the state and national form of government, but adapted to the local needs of the Student Body. Powers are distributed into the three branches: (1) legislative, which is embodied in the Legislative Council; (2) judicial, which is embodied in the Honor Court with penal and civil jurisdiction of all judicial matters; (3) executive, embodied in the President and shared with the Vice-President and the Treasurer of the Student Body. Members of all three branches are elected directly by the Student Body.

Women's Commission. The Women's Commission is an association of women students concerned about the status of undergraduate women at the University of Florida and questions of women's rights in general. Its purposes are:

1. To promote the welfare of women students.
2. To provide programs and offer services to assist women students in confronting the issues of the day.
3. To work for free access for women students to all segments of the university.

The Women's Commission replaced the Association of Women Students which was primarily a regulatory and judicial body. All women students are free to participate in the activities of the Women's Commission.

Interhall Council. The purpose of the Interhall Council is to provide an organization which will further serve as a channel of communication between Residence Area Councils, Student Government, and the Division of Housing, as well as coordinating individual Area Council activities and representing the collective interests of all residents.

The voting membership of the Interhall Council consists of two representatives from each of the Area Councils.

Dramatics. Any student has an opportunity to participate in several plays which are presented each year by the Florida Players, a dramatic group under the direction of the Department of Speech.

Legislative Council. The Legislative Council is composed of representatives elected from the colleges and living areas on the campus and in general act as the Legislative Branch of Student Government.

Publications. The Board of Student Publications publishes The Seminole, the yearbook; The Florida Alligator, the student newspaper; and The Florida Quarterly, a campus literary magazine. Editors and student managers and staff are selected from among interested student applicants.

Religious Activities. A broad program of inter-denominational religious activities is sponsored on the campus by the University Religious Association. Composed of representatives of all denominational student religious groups and of the student body and faculty at large, the Association brings outstanding lecturers in the field of religion to the University, holds group discussions and seminars, and enlists students in a program of service to the University and to the state. A faculty committee on religion appointed by the President of the University, assists the University Religious Association in its program and work.

Denominational centers adjacent to the campus and full-time student pastors are provided by a number of religious groups. Most of the campus and town churches offer special programs and services of special interest to members of the university community.

Social Fraternities. Twenty-nine national social fraternities for men have established chapters at the University. The general work of the fraternities is controlled by the Interfraternity Council, composed of one delegate from each of the national fraternities. The national fraternities at the University of Florida are Alpha Epsilon Pi, Alpha Gamma Rho, Alpha Tau Omega, Beta Theta Pi, Chi Phi, Delta Chi, Delta Sigma Phi, Delta Tau Delta, Delta Upsilon, Kappa Alpha, Kappa Sigma, Lambda Chi Alpha, Phi Delta Theta, Phi Gamma Delta, Phi Kappa Tau, Pi Kappa Alpha, Pi Kappa Phi, Phi Kappa Psi, Phi Kappa Theta, Pi Lambda Phi, Sigma Alpha Epsilon, Sigma Alpha Mu, Sigma Chi, Sigma Nu, Sigma Phi Epsilon, Sigma Pi, Tau Epsilon Phi, Tau Kappa Epsilon and Theta Chi.

Fifteen national women's social fraternities have established chapters at the University. Almost all have built chapter houses which are the center of their activities. Primary jurisdiction in sorority matters is vested in the Panhellenic Council. The fifteen chapters are Alpha Chi Omega, Alpha Delta Pi, Alpha Epsilon Phi, Alpha Omicron Pi, Chi Omega, Delta Delta Delta, Delta Gamma, Delta Phi Epsilon, Kappa Alpha Theta, Kappa Delta, Phi Mu, Phi Sigma Sigma, Pi Beta Phi, Sigma Kappa and Zeta Tau Alpha.

Professional and Honorary Fraternities. Alpha Chi Sigma, chemistry; Alpha Delta Sigma, men in advertising; Alpha Epsilon Delta, premedical; Alpha Epsilon Rho, broadcasting; Alpha Kappa Delta, sociology; Alpha Kappa Psi, business; Alpha Lambda Delta, women's freshmen scholastic; Alpha Omega Alpha, medicine; Alpha Sigma Mu, metallurgy; Alpha Zeta, agriculture; Arnold Air Society, military; Beta Alpha Psi, accounting; Beta Gamma Sigma, commerce; Block and Bridle, animal husbandry; Eta Rho Pi, health related professions; Delta Pi Epsilon, graduate business education; Delta Sigma Pi, business; Delta Theta Phi, law; Florida Blue Key, men's leadership; Gamma Alpha Chi, women's advertising; Gamma Theta Upsilon, geography; Gargoyle, architecture and allied arts; Kappa Delta Pi, education; Kappa Epsilon, pharmacy; Kappi Psi, professional pharmacy; Kappa Kappa Psi, band; Kappa Tau Alpha, honorary journalism; Lambda Gamma Phi, pre-veterinary; Lambda Tau, medical technology; Motar Board, national women's leadership; Mortar and Pestle, pharmacy; Omicron Delta Epsilon, economics; Omicron Delta Kappa, national men's leadership; Order of the Coif, law; Phi Alpha Delta, law; Phi Alpha Theta, history; Phi Beta Kappa, scholarship; Phi Chi Theta, women's business; Phi Delta Delta, women's legal; Phi Delta Kappa, education: Phi Delta Phi, legal; Phi Eta Sigma, freshmen men; Phi Kappa Phi, scholarship; Phi Mu Alpha, music; Phi Sigma, biology; Pi Lambda Theta, education; Pi Mu, premedical; Pi Mu Epsilon, mathematics; Pi Sigma Alpha, political science; Pi Sigma Epsilon, professional sales; Pi Tau Sigma, mechanical engineering; Propeller Club of the University of Florida, business; Psi Chi, psychology; Rho Chi, pharmacy; Rho Pi Phi, pharmacy; Savant, women student leaders' service organization; Scabbard and Blade, military; Sigma Alpha Eta, speech and hearing; Sigma Alpha Iota, music; Sigma Delta Chi, men in journalism; Sigma Delta Psi, athletics; Sigma Gamma Epsilon, honorary earth sciences; Sigma Lambda Chi, building construction; Sigma Pi Sigma, physics; Sigma Tau, engineering; Sigma Tau Sigma, tutoring; Sigma Theta Tau, honorary nursing: Tau Beta Pi, engineering; Tau Beta Sigma, band (women); Tau Kappa Alpha, debating; Tau Sigma Delta, architecture; Theta Sigma Phi, women in journalism; Xi Sigma Pi, forestry; Zeta Phi Eta, speech (women).

Clubs and Societies. There are more than one hundred and eighty student clubs and organizations on the campus representing varied interests and activities. These

include academic interest clubs, dance and social organizations, hobby groups, publications, religious groups and others.

HONOR SYSTEM

THE HONOR SYSTEM. One of the finest tributes to the character of the students at the University of Florida is the fact the Student Body is a self-governing group. The details of the system by which this result is reached are explained to all freshmen during the first week of their enrollment in the University. However, each parent, as well as each prospective student, is urged to read the following discussion of the Honor System, as this phase of student government forms the keystone of the entire system.

In addition to permitting student legislation on questions of interest to the members of the Student Body, execution of the laws passed, and the expenditure of student funds, the governing system at the University gives to the students the privilege of disciplining themselves through the Honor System. Inaugurated by some of our greatest educators in higher institutions of the nation and early adopted in some departments of the University of Florida, the Honor System was finally established in the entire University in 1914 as the result of student initiative. This plan, having met with the approval of all officials of the University, was given the sanction of the Board of Control, and student representatives were selected by the students to administer the system.

Among the basic principles of an Honor System are the conviction that self-discipline is the greatest builder of character, that responsibility is a prerequisite of self-respect and that these are essential to the highest type of education. Officials of the University and the Board of Control feel that students in the University of Florida should be assumed to be honest and worthy of trust, and they display this confidence by means of an Honor System.

The success of the system is dependent upon the honor of each individual member of the student body in that: (1) he is duty-bound to abide by the principles of the Honor Code, and (2) he is further pledged to report to the Honor Court such violations of the Code as he may observe.

Many men and women coming to the University for the first time feel hesitant about assuming this responsibility, inasmuch as early school training has created feelings of antipathy toward one who "tattle-tales" on a fellow-student. The theory of an Honor System adequately overcomes this natural reaction, however, when it is realized that this system is a student institution itself, and not a faculty measure for student discipline, and that to be worthy of the advantages of the Honor System each student must be strong enough to do his duty in this regard. In this way the responsibility for each student's conduct is placed where it must eventually rest—on himself.

The Honor Code of the Student Body is striking in its simplicity; yet it embodies the fundamentals of sound character. Each student is pledged to refrain from:

(a) cheating, (b) stealing, (c) obtaining money or credit for worthless checks.

On the basis of this Code, students are exended all privileges conceived to be the basic right of students of Honor. There are no proctors in the examination rooms, each student feeling free to do his work, or to leave the room as occasion arises. Secondly, fruits and supplies are placed openly on the campus, with the confidence that each student will pay for any he may take. This system makes each student the keeper of his own conscience until he has proved to his fellow-students that he no longer deserves the trust placed in him.

A breach of the System may be flagrant and serious, or it may be extenuated by circumstances. It may need only mild corrective measures to help the violator obtain a finer conception of right and wrong; it may need strong measures. To enforce the System equitably the students have established the Honor Court.

The Court is composed completely of students. The Chancellor sits in judgement of each case and is responsible for maintaining and enforcing the Honor System. Records of all proceedings are kept by the Clerk. The Attorney General and his staff of Presenting Counsel prosecute the cases before the Court and the Chief Defense Counsel and his staff of Defense Counsel defend the student before the

Court. There are Justices, elected from the various colleges on the campus, who are responsible for investigations, and maintaining the Honor System. A jury is empaneled at random from the student body to decide the guilt or innocence of the student. The Chancellor and Vice Chancellor determine the penalty which can range from severe reprimand, or penalty hours, to suspension or expulsion.

Any student convicted by this Court has the right of appeal from its ruling to the Committee on Student Conduct. A tribute to the efficiency of the Honor Court in its existence on the Florida Campus is realized in the fact that, since its establishment, a surprisingly insignificant number of the Court's decisions have been altered upon appeal.

The penal purpose of the Honor Court should receive less stress, perhaps, than its educational purpose, which is its most important function. The responsibility of acquainting every member of the Student Body with the purpose, advantages, and principles of the Honor System is placed upon members of the Court. In line with this work, members of the Honor Court participate in the orientation programs each year during Orientation Week. In addition to a series of explanatory talks at that time, special programs are conducted by the Honor Court during the school year. Honor System talks are delivered in the high schools of the State upon request and at regularly scheduled times each spring, and radio programs are broadcast especially for the high schools from Station WRUF in Gainesville.

Talks are also given to fraternities, sororities, and other organizations on the campus. A brochure is printed and distributed to each student and posters are placed in the classrooms and dormitories to explain the Honor System.

In this way the Honor Court has endeavored to fulfill its responsibility to the students who undertake the problem of self-government and self-discipline at the University of Florida.

The parent of every prospective student should feel that it is his responsibility to stress the paramount importance of honorable conduct on the part of his son or daughter while in attendance at the University of Florida. Dishonest action brings sorrow both to parent and student.

Because University students have proved worthy of the trust and responsibility involved in administering an Honor System, this feature of student government has become the greatest tradition at the University of Florida. It must be remembered that inasmuch as it is primarily a student responsibility, the future of the system rests with each new class of students entering the University.

The University faculty and administration pledge their support to the Honor System. Each student must support it or in failing to support it, contribute to the loss not only of a cherished tradition but the right of self-government. We at the University of Florida are fully cognizant that by fostering and supporting the ideals of self-government as reflected in student government, the support of American Democracy will be more thoroughly imbedded in the hearts of tomorrow's leaders.

INTERCOLLEGIATE ATHLETICS

The University of Florida athletic program, which has won the overall sports title in the Southeastern Conference for five out of the last six years, ranks now with any in the nation and has had All-Americans in all sports. The golf team won its first NCAA championship in 1968. Guidelines set down by the National Collegiate Athletic Association and the Southeastern Conference are followed in administering an eight-sport program.

Florida fields athletic teams in football, basketball, baseball, track, cross country, swimming, tennis and golf.

Physical facilities include Florida Field Stadium with a seating capacity of 61,000, two baseball diamonds, a completely equipped varsity tennis stadium, swimming pool, running track, large practice areas, an 18-hole golf course and Florida Gymnasium of the College of Physical Education and Health. The latter facility includes ample dressing and training rooms, four practice courts and the 6,000 capacity indoor varisity court.

A new facility is Yon Hall. This is an air conditioned athletic dormitory and includes a kitchen, dining room and large recreation room.

INTRAMURAL ATHLETICS AND RECREATION

Development of wholesome competition through enjoyable participation in physical activities is an essential aspect of a well-rounded college education. A successful intramural program depends primarily upon student interest in planning and executing the program as well as in actual participation in various contests and recreational activities.

Widespread student participation in intramural sports and recreation is a tradition of long standing at the University of Florida. The extensive offering of activities provides every student an opportunity to take part as an individual or as a member of a group in sports of a competitive nature.

The Student Intramural Boards conduct the details of an Intramural program comprising twenty sports ranging from such individual and dual activities as archery, tennis, and golf to such team sports as volleyball, basketball, and softball. There are 16 leagues of competition included in the program. These leagues are organized from sorority, fraternity, dormitory, independent, law, engineering, SAHPER and coeducational groups.

The Department of Intramural Athletics and Recreation maintains a Recreational Sports Service which provides other leisure time activities for students and faculty. This service also provides complete information and guidance for sports club activities. Where there is sufficient interest, additional sports clubs are formed and individuals with special ability in those areas are encouraged to act as leaders.

Equipment is furnished for most activities and is made available to any regularly enrolled student of the University of Florida upon request.

Every student at the University of Florida is urged to participate in Intramural activities as interest and time permits.

AUTOMOBILE AND TRAFFIC REGULATIONS

Graduate Students, Juniors, Seniors, students over twenty-one, married, or living at a commuting distance from the University are eligible to maintain and operate automobiles.

All students must register their automobiles or motorcycles at the University Traffic and Parking Department during their first registration period at the University. There is a system for fines and a point system for on-campus vehicle violations. A complete set of rules governing traffic, parking and vehicle registration may be secured at the office of Traffic and Parking, the Campus Police Station, or the Student Traffic Court. Each student should familiarize himself with these regulations upon registering at the University.

Student Regulations

For additional information relative to graduation, failure in studies, conduct, social activities, etc., the student should consult *The Student Handbook* and the sections of the Catalog containing regulations of the separate colleges and schools. Each student is held responsible for observance of the rules and regulations of the University insofar as they affect him.

READMISSIONS

APPLICATION FOR READMISSION

The information contained in this section applies only to students who have previously been enrolled at any level in the University of Florida. Requirements for admission for a student seeking to enroll in the University of Florida for the first time will be found in the Admissions section of this catalog. Please consult the INDEX for page numbers.

How to Apply for Readmission. An applicant should address a request to the Office of the Registrar for application forms. Forms and directions vary with the level of readmission and the applicant should indicate in his request the college and the level of his last enrollment at the University of Florida as well as the college and level for which he wishes to apply. Applications must be received in the Office of the Registrar by the deadline date for the term as published in the University Calendar in the Undergraduate Catalog in order to be considered.

READMISSION OF STUDENTS

1. *Satisfactory academic record.*
   a) An applicant must be eligible to return to the University of Florida on the basis of his previous academic record at this institution. If he has attended any college or university subsequent to his enrollment at the University of Florida, he must also have an average of "C" or higher (as computed by the University of Florida) on all work attempted at each such institution. The applicant must also be in good standing and eligible to return to each institution previously attended.
   b) An applicant for readmission must meet the admission requirements of the college or school he expects to enter. (Consult the appropriate college section of the catalog for specific admission requirements.)
2. *Satisfactory conduct record.*
   An applicant must present a satisfactory record of conduct. Regardless of other qualifications, an applicant who has experienced major or continuing difficulties with school or other authorities since his last enrollment at the University of Florida may find his application for readmission disapproved.

CREDITS

The word credit as used in this Catalog refers to one quarter hour.

DEGREES AND GRADUATION

The Board of Regents will confer the degree appropriate to the course pursued under the following conditions:

1. *Curriculum requirements.*—Certification by the Registrar and the Dean of the college concerned that all requirements of the course of study as outlined in the college announcement, or its equivalent as determined by the faculty of the college offering the course, have been completed.
2. *Recommendation of the faculty of the college awarding the degree.*
3. *Residence requirements.*—(a) The minimum residence requirement for the baccalaureate degree is three quarters. (b) Students are required to com-

plete the last forty-five credits applied toward the baccalaureate degree during regular residence in the college from which the student is to be graduated. Exception to this regulation may be made only upon written petition approved by the faculty of the college concerned, but in no case may the amount of extension work permitted exceed more than eighteen of the last fifty-four credits required for a baccalaureate degree. (c) For residence requirements for degrees in the College of Law see the *College of Law Catalog*. (d) For residence requirements of the various graduate degrees see the *Graduate School Catalog*.

4. *Average required.*—In order to secure a degree, a student must have a "C" average or better in all credits required in the Upper Division toward that degree.

5. *Two degrees.*—Two degrees of the same rank, e.g., B.A. and B.S. will not be conferred upon the same individual unless the second degree represents at least forty-five credits of additional work, with the necessary qualitative and residence requirements.

6. *Continuous attendance.*—When a student's attendance is continuous, graduation according to the curriculum under which he entered is permitted, provided the courses required are offered by the University. If some or all of the required courses are no longer offered, the faculty of the college concerned will make such adjustments for the individual student as are appropriate for the curriculum involved. As long as a student attends the University as much as one quarter during any calendar year, his residence is continuous.

7. *Application for degrees.*—Students who expect to be graduated must file application for the degree in the Registrar's Office on or before the time indicated in the current University Calendar. Students must make application in the quarter in which they expect to be graduated, regardless of previous applications.

8. *Time limit.*—To receive a degree a candidate must have completed: (a) all residence work required for graduation at least 24 hours prior to the scheduled meeting of the College Faculty voting on the candidates for degrees; (b) all extension work at least two weeks prior to the scheduled meeting of the College Faculty voting on the candidates for degrees.

9. *Extension work permitted.*—(Note: Extension work as used below refers to both extension classes and correspondence study).
   a. Students will not be permitted to take more than eighteen credits of extension work during any academic year.
   b. Students will not be permitted to take more than twelve credits of extension work during a quarter not in attendance.
   c. The amount of extension work for which students will be allowed credit toward a degree at the University shall not exceed one-fourth of the amount required for the degree. For additional regulations peculiar to the various colleges see the appropriate section of this catalog or consult the dean of the college concerned.
   d. Students will not be permitted to take by extension work more than eighteen of the last fifty-four credits necessary for a baccalaureate degree.
   e. Simultaneous registration in residence and extension work is permitted only upon approval of the dean of the college in which the student is registered.

10. *Registration of Graduate Students.*—Normally students in the Graduate School must be registered in the University at the time they receive a degree. If, however, a student has completed all requirements for his degree including courses, residence, thesis or dissertation, and all examinations at the time of registration for the term in which the degree is to be awarded, the Graduate Council will consider a petition to waive this regulation. In brief, the student must be registered for the quarter in which his final examination is given.

MAXIMUM AND MINIMUM LOAD

Some colleges have a maximum load which is stated in the Catalog. In the absence of such statement the general University regulation is followed. This regulation allows a maximum load of 15 credits for an average below "C" made during the preceding quarter of attendance and 20 credits for an average above "C" made during the preceding quarter of attendance. The minimum load is 12 credits.

Simultaneous enrollment in correspondence courses, extension work at another college or university is counted in computing the maximum, but not the minimum load.

At the time of registration, a student, with the approval of his dean, may register for less than the minimum or more than the maximum load. After the regular registration period has closed, no student will be permitted to drop below the minimum load unless he successfully petitions the college in which he is enrolled.

DUAL REGISTRATION

A. *Definition:* Dual Registration, as used in this regulation, refers to a student taking courses simultaneously at BOTH the University of Florida and another college or university.

B. Dual Registration will be permitted ONLY under the following conditions:

1. The student must have been admitted to the University of Florida under the University's regular admission policies. Even though he may have been regularly admitted to another college or university, a student must meet University of Florida admission requirements in order to enroll at this institution.

2. Approval in writing for the dual registration must have been secured by the student from the appropriate deans or their authorized representatives at EACH institution. A copy of such approval must be furnished at the time of registration to the registrar at the University of Florida.

3. A sudent will not be permitted to register at the University of Florida for a course which is a part of the curriculum at the student's parent institution. This requirement also applies if courses are available at the parent institution which might be evaluated as equivalent or acceptable substitutes for the University of Florida course. The converse of these statements also applies to University of Florida students registering for courses at another institution.

4. Priority in assignment to classes at the University of Florida will be given to regularly enrolled students.

5. A student taking courses at the University of Florida will be required to register and attend classes under the University of Florida calendar.

6. The student will pay appropriate fees at the University of Florida based on the number of credit hours for which he is registered at this institution.

It is the student's responsibility to insure that an official transcript of work completed under a dual registration is forwarded to the parent institution. Certification to selective service, social security and veterans administration programs is also the responsibility of the individual student who must request each individual institution to furnish such records as might be necessary.

GRADES

Results of students' work are recorded in the Registrar's Office as follows:

1. *Undergraduate students:* Passing grades are A,B,C,D, in order of excellence, and S-Satisfactory. Failing grades are E—Failure, I—Incomplete, U—Unsatisfactory, X—Absent from examination, EW—Dropped for non-attendance or unsatisfactory work, and WF—Withdrew failing.

Grades of I and X are considered as failing grades, and they must be changed to passing grades in accordance with the dates set in the University Calendar or be counted as grades of E in considering a student's record for graduation or in calculating averages.

2. *Graduate students:* Passing grades for graduate students are A,B,C and S. Grades of "C" in courses below 600-level are acceptable for credit toward graduate degrees only if the total program meets the B-average requirement. C grades in 600- and 700-level courses count toward a graduate degree only if an equal number of credit hours in courses numbered 600 or above have been earned with a grade of A.

SATISFACTORY-UNSATISFACTORY GRADE OPTION

It is the University's desire to allow students to receive as broad an education as possible. Therefore, students are encouraged to take courses in disciplines in which they may not have the proper background. They may take such course work as electives and receive a grade of S—satisfactory or U—unsatisfactory. These grades become a part of a student's record but do not count in the grade point average. To be eligible to enroll under the S—U grade option, a student must be 1) in good standing—may not be on any type probation, 2) classified as an undergraduate student, 3) approved by proper university officials.

No changes in a student's option may be made after the drop date as published in the calendar.

AVERAGES

1. *Definition:* The term, average, as used in any University regulation concerning probation or suspension, always refers to average on work attempted at the University of Florida. Grades received at other institutions are not averaged with grades received at the University of Florida for the purpose of meeting any average requirement. Most honorary societies take into consideration the quality of the work done at other institutions in meeting any average requirement they may have.

2. *How computed:* Averages are determined by computing the ratio of grade points to quarter hours recorded as attempted. Grade points are established by equating each quarter hour as follows: A with 4, B with 3, C with 2, D with 1, and E, EW, I, WF, and X with O. In computing averages, a course repeated is counted as many times as grades for it are recorded. Hours for grades of S and U are not computed in the grade point average.

3. *Average each division (lower, upper):* A student's grade point average will be based on his work in each division. That is, when a student is admitted to the upper division, his grade point average shall begin anew and his academic average will be based on his work in that division.

COMPREHENSIVE EXAMINATIONS

The comprehensive course examinations are administered by the Board of University Examiners and are given in December, March, June, and August of each year. A student must be familiar with the work of the various courses and be able to think in the several fields in a comprehensive way in order to pass these examinations. Standings on the comprehensive examinations are issued by the Board of Examiners and are not subject to change by any other agency.

APPLICATION FOR COMPREHENSIVE EXAMINATIONS

University College students who are enrolled in a course at the time the examination is given need not make application for it. University College students who are not enrolled in a course at the time an examination is given, and who wish to take the comprehensive examination, must apply in writing to the Board of Examiners for permission prior to the last date set for filing such applications. Applications will not be accepted from students registered in the colleges of the Upper Division. Before the application is accepted the applicant will be required to furnish the Board of Examiners with proof that this privilege has not been used to

avoid the payment of usual University fees. Applications will be accepted only for those examinations which are administered by the Board of Examiners. The Board of Examiners is the only agency authorized to give University College students examination by application.

As a general policy the Board of Examiners will not approve applications for comprehensive examinations if any of the following conditions prevail:

1. The student has been dropped from the course for excessive absences or unsatisfactory work.
2. The student has previously taken the examination in the course.
3. The student has completed other courses in the same general field (e.g., the student who has had courses in history, economics, etc., will not have an application for the comprehensive course in the social sciences, CSS 111 or CSS 112, approved).

PROBATION, SUSPENSION, AND EXCLUSION FOR ACADEMIC REASONS

The University of Florida is responsible for providing the best possible education in an economical and efficient manner. In order to discharge this responsibility, the University must require reasonable academic progress from its students. Continuation of students who have demonstrated a lack of the necessary ability, preparation, industry, or maturity to benefit reasonably from a program of university study is inconsistent with the University's responsibility as a tax supported institution.

The University of Florida Senate has enacted regulations covering probation, suspension, and exclusion. These regulations are directed toward enforcing the academic standards of the University. The academic standards of the University require both the maintenance of grade point averages consistent with a reasonable chance of satisfactory completion of the University programs and reasonable conformance to the catalog description of the program of study in which the student is engaged. Any college of the University may specify additional academic standards and students are responsible for observing the regulations pertaining to such standards.

PROBATION BECAUSE OF UNSATISFACTORY ACADEMIC ACHIEVEMENT

The purpose of academic probation is to recognize formally the fact that a student is making unsatisfactory progress.

The conditions of academic probation are intended to: (1) Relate to quality of achievement below standards required for ultimate graduation; (2) Recognize unsatisfactory work at an early date; (3) Be sufficiently significant to make clear to the student, his parents, and the administration, the shortcomings of the student's performance; (4) Provide occasion for counseling; (5) Give students whose ultimate success is doubtful further opportunity to demonstrate adequate performance.

All undergraduate students:

A student with less than a 2.0 grade point average in his respective division (lower, upper) shall be placed on scholarship *warning* if he has a grade point deficit of nine or less.

A student with less than a 2.0 grade point average in his respective division shall be placed on scholarship *probation* if he has a grade point deficit of ten or more but less than twenty.

Any student who is eligible to return to the University after a suspension because of academic reasons will be placed on scholarship probation for his next quarter,

In addition to University probation, a student may be placed on probation by the *College* in which he is registered if he does not maintain normal academic progress in the program of study in which he is engaged.

CONTINUATION OF PROBATION

All Undergraduate Students:

A student's scholarship warning shall be continued as long as he has a grade deficit of one but not more than nine. A student's scholarship probation shall be continued as long as he has a grade point deficit of ten but not more than nineteen. If his grade point deficit places him in another probation category, he shall be subject to the provisions of that category.

REMOVAL OF PROBATION

All Undergraduate Students:

Scholarship probation and/or scholarship warning will be removed when a student's grade point deficit in his respective division has been reduced to zero.

Removal of college probation:

A student will be removed from *college probation* when it is deemed by his college that he is making satisfactory academic progress in the program of study in which he is engaged.

SUSPENSION

The purpose of suspension from the University for academic reasons is to remove from the University those students who would not ultimately meet requirements for graduation if they continued at their current level of progress.

The conditions of academic suspensions are intended to: (1) Select students whose performance indicates that they will not fulfill the requirements for graduation; (2) Encourage students to leave the University as soon as a high probability of failure is evident.

All undergraduate students:

A student with a grade point deficit of twenty or more in his respective division (lower, upper) shall be suspended from the University for one quarter.

A student re-enrolling after a one quarter suspension will be on final scholarship probation, and if his grade point deficit is twenty or more at the end of the quarter he re-enrolls, he will be suspended without the possibility of re-registering except by committee action.

EARNING CREDIT WHILE SUSPENDED

A student under any kind of suspension at the University of Florida may not earn credit toward a degree at the University of Florida by taking work in residence at another institution or through extension or correspondence courses.

However, a student suspended while in the lower division who subsequently graduates from an accredited Junior College may appeal to the Petitions Committee for reinstatement. The Petitions Committee may then, upon the recommendation of the upper division school or college concerned, admit the student on academic probation to that school or college. Credits earned by such students while under suspension from the University of Florida may be transferred in accordance with other rules and regulations of the University of Florida.

EXCLUSION

Lower division students:

A lower division student who has attempted 125 quarter hours (this includes all work accepted by transfer and all work attempted at the University of Florida) shall be ineligible for further registration at the University unless he is admitted to the upper division.

All undergraduate students:

A student may be excluded from a program of study by the College responsible for the program if he fails or refuses to maintain normal academic progress. Such exclusion does not prohibit the student from enrolling in other programs or colleges if he meets the requirements.

Graduate students:

Any graduate student may be denied further registration in the University or in his graduate major when his progress toward completion of his planned graduate program becomes unsatisfactory. Unsatisfactory progress has been defined by the Graduate Council to include failure to maintain an accumulative grade average of B in all work attempted in the Graduate School.

WITHDRAWALS

All undergraduate students:

It is the responsibility of each student to make every effort to complete the full quarter at the University. If any student withdraws after the date published in the catalog, he shall be assigned grades of WF (withdrew failing) in all courses, and will be subject to the suspension and exclusion regulation.

A student on scholarship probation who withdraws from the University prior to the final date published in the catalog will be continued on scholarship probation for his next quarter.

ABSENCES OR UNSATISFACTORY WORK

Absences count from the first meeting of the class rather than from the date the student first registers for a class.

Students classified 1 UC:

A. If any student accumulates absences or fails to do class work to the extent that, in the opinion of the instructor, further enrollment appears to be of insufficient value for him to continue or detrimental to the best interests of the class, it shall be the responsibility of the instructor to warn such student in writing that further absence or poor work will cause him to be dropped from the class with a failing grade. Where possible this warning should be delivered personally; in addition to this procedure, a notification should be given to the Office of the Registrar for mailing to the proper address. All such warnings should be reported immediately to the department chairman or course chairman.

   Should any subsequent absences or failure to do classwork occur the student shall be dropped from the class with a failing grade. The instructor should initiate this procedure by giving the Registrar written notice.

   If the instructor is using a system whereby a given number of absences is allowed, he is authorized to give double "cuts" for any absence incurred during the last class meeting before an official University holiday and the first class meeting following an official University holiday.

   If he does not use such a system, he is, after warning the class, either at the beginning of the course or several periods in advance of the forthcoming holiday, authorized to drop the offending student(s) at once. When a student is dropped after a class warning the notice to the Registrar must so state.

B. When a student is suspended from a course under the provisions of A above, his parents shall be notified in writing by the Registrar.

C. NINE-DAY RULE: No student shall absent himself from the University for more than nine scholastic days per quarter in order to participate in athletic or in extracurricular activities.

   The Nine-Day Rule applies to individual members of the group rather than to the group as a whole. Consequently, a schedule of more than nine

days for any activity is not prohibited, provided the personnel of the group is so rotated that no student is absent from the campus for more than nine "scholastic" days (a scholastic day is any day on which regular class work is scheduled).

A student who has been warned for absences or unsatisfactory work in any class should not incur additional absences in that course, even though he has not been absent from the University for nine scholastic days. It is the responsibility of the student to see that his class work and attendance is satisfactory.

Students classified other than 1 UC:

Attendance in class is optional with students after successful completion of (42 quarter hours credit) the freshman year. Nevertheless, students themselves remain fully responsible for satisfying the entire range of academic objectives as they are defined by the instructor in any course.

CLASSIFICATION OF STUDENTS

Students will be classified by the Registrar each quarter as follows:

1. *University College:*

   A student with less than 42 quarter hours credit will be classified as 1.
   A student who has earned 42 quarter hours or more but who has not yet qualified for admission to the Upper Division (for any reason) will be classified as 2.

2. *Upper Division:*

   A student who has been admitted to the Upper Division but whose cumulative total quarter hours and grade points earned are less than 135 and 270, respectively, will be classified as 3.
   A student who is registered in the Upper Division and who has earned a cumulative total of 135 but less than 180 quarter hours and at least 270 grade points will be classified as 4.
   A student in the Upper Division, who is a candidate for a degree which normally required 15 quarters, who has earned a cumulative total of at least 180 quarter hours and not less than 360 grade points will be classified as 5.

3. *Non-degree programs for college graduates:*

   Degree-holding students who have not been admitted to the Graduate School will be classified as 6.

4. *Graduate School:*

   Students registered in the Graduate School will be classified as 7.

5. *Special or transient classification:*

   A special or transient student who has been permitted to register by the University Admissions Committee and who is not a candidate for a degree at the University of Florida will be classified as 0.

PETITIONS AND APPEALS

In case the operation of the academic regulations appears to result in an undue hardship on an individual student, he may petition for waiver of the regulation.

When petitions pertain to requests for change of schedule after the date authorized for change, exceptions to minimum-maximum load regulation, late registration, or permission to drop a course without a failing grade after the drop date, such petitions should be presented to the School or College in which the student is enrolled. Petitions approved by the School or College must be reported to the Registrar's Office before the action becomes official.

All other petitions should be presented to the Registrar who will refer them to the University Senate Committee on Student Petitions. No petition for readmission may be filed after regular registration has started for that quarter.

The student seeking waiver of a regulation through petition must remember that no committee on petitions can direct an instructor to reinstate a student dropped from a course for absence or unsatisfactory work, nor can the Senate Committee require any college or school to grant a degree by waiving any of these regulations.

ADMINISTRATIVE PROVISIONS

All actions taken under these regulations shall be reflected by appropriate notations on the student's record.

The Lower Division University College

Every freshman entering the University is enrolled in the University College. He remains a University College student until he has completed at least 96 quarter credits, including those comprehensive courses which are required in his curriculum. The comprehensive courses have been described by a committee of consultants as "one of the two or three leading two-year general education programs in America." The purpose of the comprehensive courses is to equip each student with the basic elements of a liberal education, that is, to improve communication skills, to acquaint students with the fundamental concepts in logic, mathematics, and the sciences, and to give them a knowledge of the history and culture of western man. This broad program, together with specialized courses taken in the first two years, widens the opportunities for self-realization and leads to an intelligent choice of an upper division college and a professional objective. The University College thus provides a two-year span during which students can assess their own abilities and interests. Because the comprehensive courses are applicable in all majors, loss of credit resulting from a shift in objectives is kept to a minimum.

The basic comprehensive courses are:

CSS 111, 112, 113. *American Institutions* (history, processes and problems: social, political and economic).
CPS 121, 122, 123. *The Physical Sciences* (the nature of the physical sciences and the physical universe).
CEH 131, 132, 133. *Comprehensive English* (freshman English; language and communication).
CLC 141, 142, 143. *Comprehensive Logic* (effective thinking, decision making, critical inquiry).
CMS 171 *Fundamental Mathematics* (basic concepts in modern algebra).
CHN 251, 252, 253. *The Humanities* (literature, philosophy, and the arts).
CBS 261, 262, 263. *The Biological Sciences* (the life sciences).

Other elective comprehensive courses are described in the back of the catalog.

TRANSFER CREDIT

At the time a transfer student first registers, his adviser will indicate which transfer courses will serve to fulfill comprehensive course requirements. All such requirements must be met before the student proceeds to the upper division. In general, a single semester of a transfer course serves for only one quarter of the equivalent comprehensive course. No prior consultation is needed except in the case of University College students who plan to attend summer school elsewhere.

ADMISSION WITH ADVANCED STANDING

The College Entrance Examination Board sponsors the Advanced Placement Program, in which the University of Florida is a participant. Under this system a student entering the University offers a nationally graded examination as evidence of his completion of a college level course taken in high school. When the results of the examination meet the minimum requirements, the student may receive University credit for courses covering similar material. In some cases only exemption from a course, not credit, is available. In either case, students are assured that the University takes cognizance of the advanced work done prior to their entrance when official evidence is presented. The University of Florida also participates in the College Level Examination Program and grants credit for satisfactory scores in the

five general examinations. For further details, see the Coordinator of Advanced Standing Credit in the University College office. Other than through the Advanced Placement Program, the University does not accept credits earned while enrolled in high school.

EXAMINATIONS BY APPLICATION

Students with grade point averages of 3.5 or higher may apply to take the final examinations in certain courses without registering for the course. If the application is approved, the final grade is based entirely on the final examination. In most courses the student may attend classes as needed. Students wishing to take a course by application should report to the University College and the appropriate department early in the quarter.

COUNSELING AND ADVISEMENT

ACADEMIC ADVISEMENT

Several kinds of counseling services are available to help students achieve maximum educational development. Each instructor is responsible for helping students master the material of his course and is available to the student for discussion of study techniques and course content. The Reading Laboratory and Clinic provides diagnostic testing, reading improvement exercises and counseling in general study habits. Every student can see an academic adviser each time he registers. *These advisers are also available each school day in the University College office for consultation on any problems relating to educational objectives and progress.* When the need is evident, these advisers refer students to specialized advisers in upper division schools and colleges or to one of the several available counseling services.

UNIVERSITY COUNSELING CENTER

The University Counseling Center provides professional psychological services to students. These include vocational guidance, career information, assistance with academic problems, specialized testing, marriage counseling and personal counseling. Any student may apply in person for such services as he deems necessary. No charge is made. The Counseling Center offers consultative services to University faculty and staff who are engaged in counseling students. Close relationships are maintained with deans, University College advisers, housing personnel, the Student Health Service, and religious centers, for the purpose of expediting both counseling and consultative services.

THE ASSOCIATE OF ARTS CERTIFICATE

The Associate of Arts Certificate serves to recognize completion of the University of Florida's program of general education. This program is designed to broaden each student's intellectual life and to provide perspective for later specialization in an upper division college. The certificate will, therefore, be awarded to those students who:

1. complete at least 96 quarter credits of college work,

2. obtain a grade point average of at least 2.0 on all work completed at the University of Florida, and

3. complete those comprehensive courses specified below in the Plan of Study appropriate to their upper division goal. Transfer credit may be used in lieu of comprehensive courses for no more than one quarter course in Group A and one quarter course in Group B as listed below. Students with greater amounts of transfer credit may, of course, qualify for admission to upper division even if not for the Associate of Arts Certificate.

The certificate will be awarded with honors or high honors to those who complete work in honors as indicated below.

Students who believe themselves qualified for the certificate must so indicate on their application to enter an upper division college. (See the calendar at the front of the catalog for the application deadline.) Qualified students who leave the University without entering upper division may apply for the certificate in the University College office.

HONORS

THE COLLEGE HONORS PROGRAM

This program is limited to students from each entering class who are issued special invitations to participate. These students become members of small tutorial classes. The small size of the classes and the high quality of the students make possible deep penetration into course materials and encourage independent work. The students develop their critical faculties through extensive reading, work on research papers, and oral performance in class.

The Associate of Arts with Honors is given to students in the College Honors Program who qualify for the certificate and who complete at least nine quarter courses in the program and have an overall 3.0 average. The Associate of Arts with High Honors is given to students in the Program if they complete at least twelve quarter courses in the Program and have an overall 3.0 average.

College Honors courses are offered by the following departments: CSS, CPS, CEH, CLC, CHN, CBS, and CY.

DEPARTMENTAL HONORS

In the comprehensive courses, certain sections may be restricted to superior students who wish to delve more deeply into the subject matter of the course. A qualified student may enroll in one or more of such sections each quarter with the approval of his adviser.

Students who have earned honors ratings from their instructor in one or more of these sections may be awarded the Associate of Arts certificate with honors or high honors upon the recommendation of the Dean of the College, to whom they may apply if their average on all work taken at the University of Florida is 3.5 or better.

Honor students in their final quarter in University College are eligible to apply for awards provided by the Ford Foundation. Program fellowships up to $2200 and cancellation of non-Florida (but not registration) fees for the first year of graduate study will be possible. For further details contact the Graduate School, 235 Tigert Hall.

PLANS OF STUDY

The following plans of study are designed to show how students may proceed during their first two years of college if they come to the University of Florida well prepared and strongly motivated toward a college education. Entering students with below average ability or preparation may need to proceed more slowly during their early terms while they improve their academic competence. Exceptionally able students may be able to proceed more rapidly. At each registration time an adviser will assist the student in deciding upon an appropriate course load.

These plans of study provide for the completion of comprehensive courses as indicated in the following general plan. In order to maintain a balanced program students must take some mathematics or science work and some verbal work each quarter.

Except in the case of transfer credit, no course may be substituted for a comprehensive course except as specifically indicated below by the Plan of Study appropriate to the student's upper division goal.

GENERAL PLAN

GROUP A

Course No.	*Title*	*Credits*
CSS 111, 112, 113	American Institutions	9
CEH 131, 132, 133	Comprehensive English	9
CHN 251, 252, 253	The Humanities	12

GROUP B

(In Group B a student may omit one term of CPS, CLC or CBS)

CPS 121, 122, 123	The Physical Sciences	10
*CLC 141, 142, 143	Comprehensive Logic	6
CMS 171	Fundamental Mathematics	4
CBS 261, 262, 263	The Biological Sciences	9

GROUP C

**Other Courses	(Including Required Physical Education)	39 or 40
	TOTAL	96

This program satisfies the course requirement for the Associate of Arts for those who wish to leave the University upon the completion of 96 credits.

* University College students who complete the calculus sequence MS 301, 302, and 303 will not be required to take any part of Comprehensive Logic. The student who completes only MS 301 will be required to take CLC 141 and 142. The student who completes MS 301 and 302 will be required to take CLC 141.

** See Physical Education and Health section for requirements.

AGRICULTURE

Students planning to enter the College of Agriculture should take, while in the University College, the following program of study. The sequence in which courses are to be taken will depend upon the department in which a student takes his major in the upper division and will be determined by the counselors of the College of Agriculture.

BASIC CURRICULUM—FRESHMAN AND SOPHOMORE YEARS

Course		*Credits*
CSS 111, 112, 113	American Institutions	9
CEH 131, 132, 133	Comprehensive English	9
CLC 141, 142	Comprehensive Logic	4
CHN 251, 252, 253	The Humanities	12
BTY 181, 182 ZY 201	Introductory and General Botany and Introductory Zoology Laboratory	12
	OR	
*ZY 201	Introductory Zoology Laboratory, ZY 202, Principles of Animal Biology, and BTY 203, General Botany	14
CY 201, 202, 203**	Introductory, General Chemistry and Qualitative Analysis	12
MS 102	Algebra and Trigonometry	5
AS 301	Principles of Agricultural Economics	5
Electives***		26-28
Physical Fitness		0
Total Credits		96

* Students expecting to major in a department having BCY 302 as a required course should take this sequence.

** Agricultural economics majors may substitute an equivalent number of hours in the following courses for CY 203: STA 420, ES 301, MS 302, ATG 203, ES 321, FI 326, FI 324.

*** Agricultural Education majors should elect EY 301, SCH 201, PS 120 in the lower division. Other majors may elect from SCH 201, EDX 301, SY 201, PSY 201, ES 201, or modern language.
The following courses have been approved as suitable electives in Agriculture: AS 310 or 320, MCA 306, AY 301, AL 309, ADP 311, BCY 300, EDX 180, EY 301, FY 413, FS 301, PT 301, SLS 330, and PLS 201.

Veterinary Training under Regional Plan

In accordance with the Regional Plan for Veterinary Education a limited number of bona fide residents of Florida are admitted each fall to the School of Veterinary Medicine, Auburn University, and to the School of Veterinary Medicine, Tuskegee Institute.

The minimum educational entrance requirement is the satisfactory completion of a prescribed course of study in an approved, accredited college or university. A total of 120 quarters hours of college work must be completed with no grade less than C and a grade point average of at least 2.25. Required courses include general chemistry and qualitative analysis, organic chemistry, mathematics, physics, English, American Institutions, botany, zoology, medical vocabulary or a foreign language, certain animal science courses, and electives. In addition, applicants must meet military and physical fitness requirements in effect at the institution attended.

Because of the rigid course requirements, most students require somewhat more than two years to complete this curriculum. Also, since certification and admission to Veterinary School is competitive, based on a quota under the Regional Education Plan, students usually need to make considerably more than the minimum grade point average of 2.25.

Pre-veterinary students should consult the Dean of the College of Agriculture before registering for the pre-veterinary curriculum.

Residents of Florida who will have completed the pre-veterinary requirements in June of the year that entrance into the School of Veterinary Medicine is desired in the fall, and who wish to be included in the State's list of eligibles, should see the Dean of the College of Agriculture.

ARCHITECTURE AND FINE ARTS

Students planning to enter the College of Architecture and Fine Arts should take, while in the University College, one of the following programs of study. To be eligible for admission to the College of Architecture and Fine Arts, the student is required to have at least a 2.0 (C) average in all lower division courses required for the curriculum he desires to enter. Specific grade point requirements and minimum grades required for the various courses may be found in the appropriate department office. For upper division programs see the College of Architecture and Fine Arts section of the catalog.

A. For the degree, Bachelor of Design (Architecture)

Freshman Year	*Credits*
MS 102 Algebra & Trigonometry	5*
PS 211, 221 General Physics 1	5
CEH 131 Comprehensive English	3
AE 121 Building Arts	1
Elective	2
Physical Fitness	0
	16

Sophomore Year	*Credits*
CHN 251 Humanities 1	4
UCC 191 Cybernetics & Society	5
CSS 111 American Institutions	3
AE 215 Architectural Communications	4
Physical Fitness	0
	16

MS 201 Analytical Geometry & Calculus 1	5
PS 212, 222 General Physics	5
CEH 132 Comprehensive English 2	3
AE 112 Basic Drawing	4
Elective	1
Physical Fitness	0
	17

CBS 261 Biological Science	3
CHN 252 Humanities 2	4
CSS 112 American Institutions	3
AE 235 Architectural Design 1	4
Elective	1
Physical Fitness	0
	15

*When not needed, 4 quarter credits of Comprehensive Logic are required.

PS	213, 223 General Physics 3	5
CEH	133 Comprehensive English	3
AE	113 Architectural Drawing 1	4
Elective		3
Physical Fitness		0
		15

CBS	262 Biological Science	3
CHN	253 Humanities	4
CSS	113 American Institutions	3
AE	236 Architectural Design 2	4
Elective		3
Physical Fitness		0
		17

B. For the Degree in Interior Design

Freshman Year		*Credits*
CEH	131 Comprehensive English	3
CSS	111 American Institutions	3
CLC	141 Comprehensive Logic	2
CMS	171 Fundamental Mathematics	4
AE	121 Building Arts	1
Elective(s)		3
Physical Fitness		0
		16

Sophomore Year		*Credits*
CHN	251 Humanities	4
CPS	123 Physical Science	3
ATG	201 Elementary Accounting	3
AE	215 Architectural Communications	4
Elective(s)		2
Physical Fitness		0
		16

CEH	132 Comprehensive English	3
CSS	112 American Institutions	3
CLC	142 Comprehensive Logic	2
CPS	121 Physical Sciences	4
AE	112 Basic Drawing	4
Physical Fitness		0
		16

CHN	252 Humanities	4
CBS	261 Biological Science	3
AE	235 Architectural Design 2	4
AE	315 Architectural Drawing 1	4
Elective		1
Physical Fitness		0
		16

CEH	133 Comprehensive English	3
CSS	113 American Institutions	3
CLC	143 Comprehensive Logic	2
CPS	122 Physical Science	4
AE	113 Architectural Drawing 1	4
Elective		1
Physical Fitness		0
		17

CHN	253 Humanities	4
CBS	262 Biological Science	3
AE	236 Architectural Design 2	4
AE	345 Materials & Methods 1	4
Elective		1
Physical Fitness		0
		16

C. For the Degree in Landscape Architecture

Freshman Year	*Credits*	*Sophomore Year*	*Credits*
CEH 131 Comprehensive English	3	CHN 251 Humanities	4
CSS 111 American Institutions	3	AE 215 Architectural Communications	4
CLC 141 Comprehensive Logic	2	LAE 271 Landscape Architecture 1	4
CPS 121 Physical Science	4	Elective	4
MS 102 Algebra & Trigonometry	5	Physical Fitness	0
Physical Fitness	0		
	17		16
CEH 132 Comprehensive English	3	CHN 252 Humanities	4
CSS 112 American Institutions	3	CBS 261 Biological Sciences	3
CLC 142 Comprehensive Logic	2	AE 235 Architectural Design 1	4
CPS 122 Physical Science	3	LAE 272 Landscape Architecture 2	4
AE 112 Basic Drawing	4	Elective	2
AE 121 Building Arts	1	Physical Fitness	0
Physical Fitness	0		
	16		17
CEH 133 Comprehensive English	3	CHN 253 Humanities	4
CSS 113 American Institutions	3	BTY 203 Botany	5
CLC 143 Comprehensive Logic	2	AE 236 Architectural Design 2	4
UCC 191 Cybernetics & Society	5	AE 345 Materials & Methods of Construction	4
AE 113 Architectural Drawing 1	4	Physical Fitness	0
Physical Fitness	0		
	17		17

D. For the Degree in Building Construction

Freshman Year 1st Quarter	*Credits*	*Sophomore Year 1st Quarter*	*Credits*
CSS 111 American Institutions	3	CHN 252 Humanities	4
CEH 131 Comprehensive English	3	CBS 261 Biological Sciences	3
*MS 102 Algebra & Trigonometry	5	PS 212 General Physics	4
AE 113 Architectural Drawing	4	PS 222 Physics Laboratory	1
Elective	1	EH 303 Business Communications	4
Physical Fitness	0	Elective	1
		Physical Fitness	0
	16		17

*When not needed, 4 quarter credits of Comprehensive Logic are required.

2nd Quarter

CSS	112 American Institutions	3
CEH	132 Comprehensive English	3
MS	201 Analytic Geometry & Calculus	5
BCN	123 Construction Materials	4
Elective		1
Physical Fitness		0
		16

3rd Quarter

CSS	113 American Institutions	3
CEH	133 Comprehensive English	3
CHN	251 Humanities	4
PS	211 General Physics	4
PS	221 Physics Laboratory	1
Elective		1
Physical Fitness		0
		16
		48

2nd Quarter

CHN	253 Humanities	4
PS	213 General Physics	4
PS	223 Physics Laboratory	1
ATG	201 Elementary Financial Accounting	5
Elective		1
Physical Fitness		0
		15

3rd Quarter

CBS	262 Biological Sciences	3
UCC	191 Cybernetics & Society	5
BCN	261 Construction Mechanics 1	4
**Elective(s)		4
Physical Fitness		0
		16
		48

**GY 220—Engineering Geology is recommended.

E.—For the degree in Art (Advertising Design, Art Education, Crafts, Fine Arts, History of Art)

Freshman Year		*Credits*
CSS	111, 112, 113, American Institutions	9
CEH	131, 132, 133, Comprehensive English	9
CLC	141, 142, 143, Comprehensive Logic	6
*CPS	121, 122, 123, Physical Sciences	7
CMS	171, Fundamental Mathematics	4
ART	101, 102, Begininng Design 1 and 2	6
ART	103, 104, Beg. Drawing and Painting 1 and 2	6
Elective		2
Physical Fitness		0
		49

Sophomore Year		*Credits*
CHN	251, 252, 253, Humanities	12
*CBS	261, 262, 263, Biological Sciences	9
ART	205, Intermediate Design	3
ART	206, Int. Drawing and Painting	3
ART	207, 208, 209, Intro. to History of Art, 1, 2 and 3	9
General Electives		12
Physical Fitness		0
		48

*Students may omit the last quarter of CPS or CBS for a total of 3 credits.

F.—For all music majors programs in the College of Architecture and Fine Arts: Bachelor of Music and Bachelor of Music Education degrees. NOTE: Music majors must be admitted to the music major program by the Deprtment of Music. Prospective majors should see the Department of Music Chairman as early as possible in their college careers.

Freshman Year	*Credits*	*Sophomore Year*	*Credits*
Music Performance Area		*Music Performance Area*	
Applied Music in courses above 100: Major Instrument or Voice	9	Applied Music in courses above 100: Major Instrument or Voice	9
Ensemble: Band, Chorus, or Orchestra	3	Ensemble: Band, Chorus, or Orchestra	3
MSC 71, 72, 73, Piano Skills	3	MSC 74, 75, 76, Piano Skills	3
Music Theory Sequence		*Music Theory Sequence*	
MSC 101, 102, 103, 104, 105, 106	12	MSC 201, 202, 203, 204, 205, 206	12
General Education Courses		*General Education Courses*	
CSS 111, 112, 113 American Institutions	9	CLC 141, 142, 143 Comprehensive Logic	6
CEH 131, 132, 133 Comprehensive English	9	CHN 251, 252, 253 Humanities	12*
Elective	3	*Elective*	3
Physical Fitness	0	Physical Fitness	0
	48		48

* Of the 7 courses: CMS 171; CPS 121, 122, 123; CBS 261, 262, 263; a student must elect 3 courses. These 3 courses may be taken in the junior year, or the student may elect to take these courses in the sophomore year and take CHN 251, 252, 253, in the junior year.

NOTE: The Bachelor of Arts degree in music is offered through the College of Arts and Sciences with the cooperation of the Department of Music. See the College of Arts and Sciences sections of the catalog for that degree.

ARTS AND SCIENCES

The College of Arts and Sciences offers degrees with majors in twenty-eight different fields, which are listed in the Arts and Sciences section of the catalog.

Students who expect to enter the College should:

1. Complete the General Plan of the University College (as listed above) with grades of C or better. In general, students with a grade of D in any of these courses must complete an Arts and Sciences course in the same area with a grade of C or better. In no instance will a student having less than a C-average on all work be admitted to the College. For certain majors the following substitutions for comprehensive courses are recommended:

   a. Bacteriology, botany, chemistry, physics, pre-medical, pre-dental, and zoology majors should substitute courses in chemistry for CPS 121, 122, 123.

   b. Bacteriology, botany, chemistry, economics, mathematics, premedical, predental, physics, statistics, and zoology majors should substitute an MS course for CMS 171.

   c. Bacteriology, botany, premedical, predental, and zoology majors should substitute courses in zoology and botany for CBS 261, 262, 263.

2. Complete 96 quarter hours of credit in the University College by taking, in addition to the General Plan, Arts and Sciences courses at the 100- and 200- level. With certain exceptions, such as SCH 201, freshmen may register for 100- and 200- level courses. Sophomores may register for 100-, 200-, and 300-level courses provided that they have the prerequisites.

3. Begin a foreign language. *Prior to graduation* a student must show proficiency in a foreign language either by examination or by successful completion of

the final quarter of work offered at the 200 level or higher at the University of Florida.

4. Complete a course in mathematics. *Prior to graduation* (not necessarily prior to admission to the upper division), a student must complete CMS 171, STA 320, SY 340, PSY 411, MS 102, or a higher MS course.

5. Complete one course in science having a laboratory, *prior to graduation* (not necessarily prior to admission to the upper division). A student may satisfy this requirement while he is in the lower division by taking CBS 264, or by successfully completing an Arts and Sciences course in science which has a laboratory. A grade of at least C is required.

6. Study the materials on admission, advisement, and requirements for degrees in the Arts and Sciences section of the catalog, and consult with the proposed major department as soon as they have chosen a major field.

Teacher Preparation in Arts and Sciences

Students may earn their degrees in the College of Arts and Sciences and complete requirements for certification as high school teachers in one or more academic subjects by following one of the Arts and Sciences—Education Programs described in the College of Education section in this catalog.

Further information may be obtained in the College of Arts and Sciences office, 113 Anderson Hall.

BUSINESS ADMINISTRATION

To enter the College of Business Administration, students are required to complete the curriculum below or the equivalent thereof in each of the courses or areas of knowledge listed including the following:

BASIC CURRICULUM—FRESHMAN AND SOPHOMORE YEARS

Course		*Credits*
*CSS 111, 112, 113	American Institutions	9
*CEH 131, 132, 133	Comprehensive English	9
CPS 121, 122	Physical Sciences	7
CLC 141, 142, 143	Comprehensive Logic	6
CHN 251, 252, 253	Humanities	12
CBS 261, 262	Biological Sciences	6
CPS 123 *or* CBS 263,	Physical Sciences *or* Biological Sciences	3
**ATG 201	Elementary Financial Accounting	5
**ATG 203	Elementary Managerial Accounting	3
**ATG 204	Elementary non-Profit Accounting	3
EH 303	Business Communications	4
***ES 203, 204, 205	Basic Economics	9
*MS 102	Algebra and Trigonometry	5
*MS 204	Calculus for Economics and Business	5
SCH 201	Public Speaking	4
STA 320	Introduction to Statistics	4
Electives		10-5
Physical Fitness		0
		96-97

*Should be taken in freshman year.

**The ATG 201, 204 sequence is required for Accounting Majors.
All other Business Administration majors require the ATG 201, 203 sequence.

***Or, ES 201, 202 Basic Economics, 10 Credits.
The MS 301, 302 Analytic Geometry and Calculus sequence will be accepted as substitutes for MS 102, 204.

Courses offered by the College of Business Administration available to Students in the University College

The following courses offered by the College of Business Administration may be taken by students in the University College: ATG 201, 203 or 204, BS 101, ES 201, 202 (*or* ES 203, 204, 205), ES 211, RE 340.

Suggested Electives: Courses in EH, GPY, HY, LY, SCH, CPS, CBS, and Foreign Languages.

EDUCATION

Elementary or Early Childhood Education

All University College students working in these fields toward degrees in the College of Education will pursue the following program.

A. General education requirements

1. American Institutions (CSS 111, 112, 113 or CSS 115-116)
*2. Physical Sciences (CPS 121, 122, 123)
3. Comprehensive English (CEH 131, 132, 133)
4. Comprehensive Logic (CLC 141, 142, 143 or CLC 144-145-146)
5. Fundamental Mathematics (CMS 171)
6. The Humanities (CHN 251, 252, 253)
*7. Biological Sciences (CBS 261, 262, 263)

* one quarter of CBS or of CPS may either be omitted or taken as an elective.

B. General preparation requirements

At least 17 credits of elective courses chosen so as to further broaden the student's knowledge. To obtain breadth, students may distribute their courses among fields rather than concentrating in one. Course work in areas of recognized weakness are especially appropriate.

NOTE:

1. *Prior to graduation* a student must obtain at least 15 credits of specialization in *one* area. These 15 hours may be diversified within an area or they may be in a specific subject included in one of the following areas: Social Sciences (Sociology, Anthropology, Economics, Geography, Political Science, History, Religion, or Philosophy), Science (Astronomy, Chemistry, Geology, Zoology, Botany, etc.), Foreign Languages, Mathematics, Fine Arts (Art, Music), Language Arts (English), or Health Education. Such specialization may be completed in the junior and senior years when 400- and 500-level courses may be taken.

2. The following courses may be taken in the sophomore year or delayed to the junior year:

MSC 260 (2.0 average and 75 credits required)
SCH 201 (or pass the speech screening test offered by the Speech Department)
EH 491 (see prerequisites)

EDF 345 is normally taken in the junior year but may be taken by third quarter sophomores who have completed 85 credits.

3. At least 96 credits are required for admission to upper division. The College of Education will accept those students who present the best records and show the most promise of success in a teacher education program. See the College of Education section of the catalog for further information relating to admission to upper division.

4. Physical Fitness (0 credits) is required for 6 quarters.

Secondary Education and Special Teaching Fields

Secondary Educaton students wishing certification for teaching in grades 7-12 may work toward degrees in either the College of Education or the College of Arts and Sciences.

Certain other programs prepare students for careers at all levels from kindergarten through grade 12 (K-12).

These special programs are:

Art (through either the College of Education or the College of AFA)
Library Science (through either the College of Education or the College of Arts and Sciences)
Music (through the College of AFA)
Physical Education (through the College of Physical Education)
Special Education (through the College of Education)
Speech Pathology and Audiology (through either the College of Education or the College of Arts and Sciences)

All secondary and K-12 programs are specified in the College of Education section of the catalog.

In any case students must, while in the University College, accomplish the following course work prior to admission to upper division:

A. General education requirements

1. American Institutions (CSS 111, 112, 113 or CSS 115-116)
*2. Physical Sciences (CPS 121, 122, 123)
3. Comprehensive English (CEH 131, 132, 133)
4. Comprehensive Logic (CLC 141, 142, 143 or CLC 144-145-146)
5. Fundamental Mathematics (CMS 171)
6. The Humanities (CHN 251, 252, 253)
*7. Biological Sciences (CBS 261, 262, 263)

* one quarter of CBS or of CPS may either be omitted or taken as an elective

Science majors should take CY instead of CPS and ZY and BTY instead of CBS. They also take MS courses instead of CMS. Certain other exceptions are indicated for Music Education.

B. General preparation requirements

At least 17 credits of courses outside of the proposed teaching field in the 100-, 200- and 300-level should be chosen so as to further broaden the student's knowledge. To obtain breadth, students may distribute their courses among several fields rather than concentrating in one. Course work in areas of recognized weakness are especially appropriate.

C. Teaching Field requirements

These teaching fields are listed in the College of Education part of the catalog together with course requirements for each field. Many of these courses can and should be taken while in the University College.

NOTE:

1. Students who choose to work toward a degree in the College of Arts and Sciences should study the admission and graduation requirements specified in that part of the catalog. A foreign language should be started while in lower division. Students working toward degrees in the Colleges of Architecture and Fine Arts or Physical Education should study those sections of the catalog.

2. SCH 201 may be taken in the sophomore year. Instead, students may pass the speech screening test offered by the speech department. EDF 345 is normally taken in the junior year but may be taken by third quarter sophomores having at least 85 credits.

3. At least 96 credits are required for admission to the College of Education. The College of Education will accept those students who present the best records and show the most promise of success in a teacher education program. See College of Education Admission Requirements for further information.

4. Physical Fitness is required each quarter for 6 quarters.

ENGINEERING

Essential Preparation: Modern engineering education demands much in the way of specific high school preparation not required in other college programs. The beginning engineering student should have a good understanding of the basic physical sciences, a highly developed ability in mathematics, and the competence to read

rapidly and with comprehension. The College of Engineering considers that a minimum adequate preparation would be substantially as follows:

(1) The high school program should include the following subjects:

Essentials

English	4 years or 3 years of English and 2 years in one foreign language
Elementary algebra	1 year
Intermediate and advanced algebra	1 year
Plane geometry	1 year
Trigonometry	½ year
Chemistry	1 year
Physics	1 year
American History and Social Studies	2 years

Desirable

Additional Mathematics	½ year
Foreign language	2 years

Electives

Subjects which place emphasis on reading, mathematics and/or science.

(2) The quality of the high school record.

Mere completion of the subjects listed above is not enough. The student entering engineering should have thorough understanding in all these areas. Such a level of comprehension could be indicated by grades of B or higher for all of the work he has completed in high school and above the median score on the Florida 12th grade test or the Scholastic Aptitude Test.

Deficiencies in the above subjects may be overcome by registering in certain foundation courses before proceeding with parts of the regular pre-engineering program.

The pre-engineering program, whether taken at the University of Florida's University College or in one of the Florida junior colleges, consists of courses of two semesters, or equivalent, in the following areas: English, social studies, humanities, general chemistry and qualitative analysis, and physics (taught with the use of calculus); for Graphics requirements (see departmental program in Engineering Section); mathematics at least through integral calculus; and in some cases other required or elective courses. This program totals at least 64 semester hours (96 quarter hours). Satisfactory completion of this program leads to eligibility to apply for admission to the College of Engineering. Junior college counselors are referred to the *University of Florida Junior College Counseling Manual* sections on General Information and Engineering, and to *A Report on Articulation in Engineering*, State Board of Education, June 1966, for addtional information.

The following pre-engineering program is designed for those students whose high school preparation meets the criteria above without deficiencies. All freshmen entering the university are required to consult with a university advisor in planning their academic programs. High school records and test scores are reviewed and a program of study commensurate with the student's academic capabilities is assigned. This work-load may range from a minimum of 12 to as much as 20 credit hours per quarter. A student of average academic capabilities and a high order of motivation should be able to carry 15-16 credits each quarter and should thus be able to earn a bachelor's degree in 13 quarters. If he pursues a normal academic program of three quarters each year it will take him four years and one quarter of the fifth year to earn his B.S. degree.

Courses			*Credits*
CSS	111, 112, 113	American Institutions	9
CEH	131, 132, 133	Comprehensive English	9
CHN	251, 252, 253	The Humanities	12
EGC	180	Engineering Concepts & Studies	1
CY	211, 212, 213	General Chemistry & Qual. Analysis	12
MS	301, 302, 303, 304	Analytic Geometry & Calculus	20

MS 305	Elementary Differential Equations	3
PS 215, 216, 217	General Physics with Calculus	9
PS 225, 226, 227	Physics Laboratory	3
*ISE 350	Digital Computer Programming	2
**Departmental Requirements and Graphics		10
Physical Fitness		0
Total credits required for admission to Upper Div.		96

*Students entering Chemical Engineering take CHE 303-Computer Model Formulation (3 credits). Instead of ISE 350. This will reduce the departmental requirements to 9 hours.

**See Engineering section under department curriculum.

FORESTRY

Students desiring to prepare for professional careers in forestry, wildlife ecology, or forest products should select the appropriate program from those listed below. Such students should contact the Director of the School of Forestry at the earliest possible date for assignment to a counselor.

Students with adequate preparation in fundamental subjects may upon approval of their counselor bypass certain listed basic courses and proceed with more advanced work in the fields concerned.

A. Pre-Professional Program in Forestry or Wildlife Ecology

Courses		*Credits*
CSS 111, 112, 113 or CSS 115, 116	American Institutions	9-10
CEH 131, 132, 133	Comprehensive English	9
CHN 251, 252, 253	Humanities	12
ES 201, 202 or ES 203, 204, 205	Basic Economics	9-10
SCH 201	Public Speaking	4
Biological Science (elect one of the following sequences)		12-15
(a) BTY 181, 182 and ZY 201	12 cr.	
(b) ZY 201, 202 and BTY 203	14 cr.	
(c) CBS 261, 262, 263, 264 and BTY 203	15 cr.	
*Mathematics (elect one of the following)		5-6
(a) MS 201, 202 Analytical Geometry and Calculus for Architects	6 cr.	
(b) MS 204 Calculus for Economics and Business	5 cr.	
(c) MS 301 Analytical Geometry and Calculus I	5 cr.	
Chemistry (elect one of the following)		12-16
(a) CY 201, 202, 203, 204 General Chemistry	16 cr.	
(b) CY 211, 212, 213 General Chemistry	12 cr.	
PS 211 and either 212 or 213	Physics	8
PS 221 and either 222 or 223	Lab for Physics	2
Electives		4-14
Physical Fitness		0
	Total	96

* Represents the minimum requirement. Students with adequate secondary school backgrounds and who are preparing for careers in research, operations analysis or teaching should consider scheduling MS 301, which is a basic prerequisite to most additional higher mathematics courses. Students with inadequate backgrounds in mathematics will have to complete MS 102—Algebra and Trigonometry (5 credits) or equivalent, prior to scheduling the indicated math requirement.

B. Pre-Professional Program in Forest Products

Courses		*Credits*
CSS 111, 112, 113 or		
CSS 115, 116	American Institutions	9-10
CEH 131, 132, 133	Comprehensive English	9
CHN 251, 252, 253	Humanities	12
SCH 201	Public Speaking	4
*ATG 201, 202, 203	Elementary Accounting 9 cr. or	
*EGR 183, 184, 185	Engineering Graphics 6 cr.	6-9
Biological Science (elect one of the following sequences)		9-15
(a) CBS 261, 264 and BTY 203	9 cr.	
(b) BTY 181, 182 and ZY 201	12 cr.	
(c) CBS 261, 262, 263, 264 and BTY 203	15 cr.	
Mathematics (elect one of the following)		5-15
(a) MS 204 Calculus for Economics and Business	5 cr.	
(b) MS 301, 302, 303 Analytical Geometry and Calculus 1, 2, 3	15 cr.	
Chemistry (elect one of the following)		12-16
(a) CY 201, 202, 203, 204 General Chemistry	16 cr.	
(b) CY 211, 212, 213 General Chemistry	12 cr.	
Physics (elect one of the following)		15
(a) PS 211, 212, 213 Physics and 221, 222, 223 Physics Lab	15 cr.	
(b) PS 215, 216, 217 Physics with 225, 226, 227 Calculus and Lab	15 cr.	
**Electives		4-9
Physical Fitness		0
Total		96

*Students who elect Elementary Accounting should also take MS 204. Students electing Engineering Graphics should also take Calculus, MS 301, 302, 303, and Physics with Calculus, PS 215 through 227.

**Recommended electives include personal development courses or Basic Economics, ES 201, 202, or ES 203, 204, 205.

Sub-professional, technician-type training is not offered at the University of Florida. However, the School of Forestry will be glad to provide information regarding such programs conducted by a number of "forest ranger" schools, one of which is located in Florida.

HEALTH RELATED PROFESSIONS

University College students planning to apply for Upper Division status in the College of Health Related Professions are urged to study the section of the catalog dealing with that college and its several programs, especially those paragraphs dealing with admission policies; students' attention is also directed to the section on Student Aid.

In order to facilitate their applications, it is important that each quarter all pre-professional students record their names with the office of the department appropriate to their major objective (Medical Technology, Room H-617; Occupational Therapy, Room A-92; Physical Therapy, Room A-96; all in the Shands Teaching Hospital).

Students who plan to earn a baccalaureate degree in the College of Health Related Professions elect one of the following programs:

A.—For the degree in Medical Technology

Freshman Year		*Credits*
CSS	111, 112, 113 American Institutions	9
CEH	131, 132, 133 Comprehensive English	9
CLC	141, 142 Comprehensive Logic	4
CY	211, 212, 213 General Chemistry and Qualitative Analysis	12
HRP	101 Introduction to Health Related Professions	3
MET	201 Introduction to Medical Technology	2
Electives		9
Physical Fitness		0
		48

Sophomore Year		*Credits*
CHN	251, 252, 253 The Humanities	12
*CMS	171 Fundamental Mathematics	4
ZY	201, 202 General Zoology	9
CY	362, 363 Organic Chemistry	6
CY	331 Quantitative Analysis	4
PS	120 Elements of Physics	6
Electives		7
Physical Fitness		0
		48

B.—For the degree in Occupational Therapy

Freshman Year		*Credits*
CSS	111, 112, 113 American Institutions	9
CPS	121, 122, 123 The Physical Sciences	10
CEH	131, 132, 133 Comprehensive English	9
CLC	141, 142, 143 Comprehensive Logic	6
HRP	101 Introduction to Health Related Professions	3
Electives		11
Physical Fitness		0
		48

Sophomore Year		*Credits*
CMS	171 Fundamental Mathematics	4
CHN	251, 252, 253 The Humanities	12
CBS	261, 263 Biological Sciences	6
ZY	201 Introductory Zoology Laboratory	4
PSY	201 General Psychology	4
PSY	309 Psychology of Personality	5
ART	210 Studio for Non-Majors	2
SCA	340 Woodworking	3
SCA	330 Crafts	3
Electives		5
Physical Fitness		0
		48

C.—For the degree in Physical Therapy

Freshman Year		*Credits*
CSS	111, 112, 113 American Institutions	9
CEH	131, 132, 133 Comprehensive English	9
**CY	201 Introductory general Chemistry	4
CY	202, 203 General Chemistry and Qualitative Analysis	8
*MS	102 Algebra and Trigonometry	5
PSY	201 General Psychology	4
HRP	101 Introduction to Health Related Professions	3
Electives		3
Physical Fitness		0
		45

Sophomore Year		*Credits*
CHN	251, 252, 253 The Humanities	12
CLC	141, 142, 143 Comprehensive Logic	6
ZY	201 Introductory Zoology Laboratory	4
ZY	202 Principles of Animal Biology	5
ZY	309 Comparative Vertebrate Anatomy	5
PSY	309 Psychology of Personality	5
***PS	120 Elements of Physics	6
Electives		8
Physical Fitness		0
		51

*Students who qualify may take an advanced mathematics course instead of MS 102. Consult University College adviser.

**If required, otherwise CY 202, 203, 204 is taken in the Freshman Year.

***Eligible students should take PS 211-221, 212-222, 213-223. Consult University College adviser.

JOURNALISM AND COMMUNICATIONS

The College of Journalism and Communications offers curricula leading to the degrees of Bachelor of Science in Advertising, Broadcasting, or Journalism, as well as sequences in Public Relations and Technical Journalism. Detailed information about upper division course requirements is given in the section on Journalism and Communications in this Catalog.

In the University College, the program for students expecting to enter the College of Journalism and Communications at the start of their junior year is:

GROUP A (required of all students)

		Credits
CSS	111, 112, 113	9
CEH	131, 132, 133	9
CHN	251, 252, 253	12
UCC	191	5
GROUP B (students may omit the last quarter of CPS, CLC or CBS)		
CPS	121, 122, 123	10
CLC	141, 142, 143	6
CMS	171	4
CBS	261, 262, 263	9

Students also must complete the following pre-professional and general courses:

			Credits
JM	118	Survey of Communications	3
JM	201	Writing for Mass Communications	4
*SCH	201	Effective Speaking	4
LY	201	Uses of Books and Libraries	2
HY	245	United States to 1877	5

* Speech screening test offered.

			Credits
HY	246	United States since 1877	5
ES	201	Basic Economics	5
BR	212	Introduction to Broadcasting (Broadcasting majors only)	3
Electives			3-7
Physical Fitness			0
		Total	96

LAW

The College of Law offers a program leading to the degree of Juris Doctor. Admission is limited to those with a bachelor's degree from an accredited college or university who have satisfactory undergraduate records and have attained a satisfactory score on the Law School Admission Test. For detailed information on admission requirements, course and programs, see the *College of Law Catalog.*

MEDICINE AND DENTISTRY

The College of Medicine and the College of Dentistry (probable opening date of 1972) are units of the University of Florida's J. Hillis Miller Health Center,

located on the main campus of the University in Gainesville. Other units of the Health Center are the Colleges of Nursing, Pharmacy, Health Related Professions and the Shands Teaching Hospital and Clinics.

Educationally the program of the College of Medicine is designed to provide the very finest education possible in the scientific aspects of medicine. The proximity of the Colleges to the University proper offers an unusual opportunity for many of the varied resources of the University to be applied not only to the training of physicians but to the training of basic medical scientists as well. While modern practice in patient care is the central theme of the educational program, considerable stress is placed on research and teaching in all fields related to health.

Design of the Health Center's educational program and physical plant is such that students in the College of Medicine join students of the other health professions, utilizing cooperatively the many resources and facilities of the Health Center and a great University, in order that they might work better together later in their professional careers.

For information on admission requirements and courses for the program leading to the degree of Doctor of Medicine, see the Bulletin of the College of Medicine. For information on graduate programs in medical sciences leading to the degree of Doctor of Philosophy, see the *Graduate School Catalog.*

Pre-Medical and Pre-Dental Programs

The University of Florida, rather than having a separate, organized pre-medical or pre-dental major program, feels that an undergraduate student should be allowed to major in any field or college. However, medical and dental schools expect applicants to have performed at a high level of academic accomplishment including basic work in science.

It should be recognized that the typical student now being admitted to medical school has had the ability to carry at least 16 hours each term in college while maintaining a "B" average. Advisers are available to assist the student in selecting a course load appropriate to the student's background and ability and to help him follow a program in the University College which will enable him to:

a. obtain the prerequisites for admission to one of the upper division colleges, normally the College of Arts and Sciences.

b. complete the required number of terms in CSS, CEH, CLC and CHN.

c. begin at the appropriate level in mathematics and work toward completion of the MS 301, 302 and 303 sequence.

d. complete general chemistry (either the CY 201 or the CY 211 sequence) and follow it with organic chemistry (the CY 371 sequence).

e. complete ZY 201, 202 and at least one course at the 300 level, normally 309, 310, 311 or 325.

f. in addition to the above course work taken in the University College, the student must complete general Physics (the PS 211 sequence). Most students will also take additional work in chemistry (CY 331, the CY 341 sequence, the CY 431 sequence), in zoology (ZY 570, 571, 574, 516) and in statistics.

It is important that each quarter, all pre-medical and pre-dental students record their names with the pre-professional office, 105 Anderson Hall, in order to facilitate the needed recommendations which accompany application to medical school in the senior year.

NURSING

Freshman Year		*Credits*
CSS	111, 112, 113 American Institutions	9
CPS	121, 122, 123 Physical Sciences	10
CEH	131, 132, 133 Comprehensive English	9
CLC	141, 142, 143 Comprehensive Logic	6
Electives		12-18
Physical Fitness		0
		46-52

Sophomore Year		*Credits*
CMS	171 Fundamental Mathematics	4
CHN	251, 252, 253 The Humanities	12
CBS	261, 262, 263 Biological Sciences	9
BCY	300 Bacteria in Everyday Life	5
FS	250 Human Nutrition	4
EDF	345 Human Growth and Development or EDF 341 The Young Child	5
Electives		9-13
Physical Fitness		0
		48-52

Students may choose electives according to their interests; however, they are advised to select several electives in one subject area.

The student is urged to study the College of Nursing section of the catalog, especially the admission policy paragraphs.

PHARMACY

The program of study leading to the degree of Bachelor of Science in Pharmacy is divided into two parts—two years of prepharmacy in the University College and three years in the College of Pharmacy.

In keeping with the accreditation requirements of the American Council on Pharmaceutical Education, all students must be enrolled in one or more pharmacy courses for a minimum of nine quarters, regardless of the number of studies completed in other fields. Upon enrolling in pharmacy courses for the first time, students must sign the register in the office of the Dean of the College of Pharmacy.

The program for the first two years is as follows:

			Credits
CSS	111, 112, 113	American Institutions	9
CEH	131, 132, 133	Comprehensive English	9
CLC	141	Comprehensive Logic	2
MS	102	Algebra and Trigonometry	5
MS	301	Analytical Geometry and Calculus	5
CY	211	General Chemistry	4
CY	212, 213	General Chemistry & Qualitative Analysis	8
CHN	251, 252, 253	The Humanities	12
BTY	181	Introductory Botany	5
ZY	201	Introductory Zoology Laboratory	4
ZY	202	Principles of Animal Biology	5
PS	211, 221	General Physics - Mechanics with Laboratory	4
PS	212, 222	General Physics - Electricity & Magnetism with Laboratory	4
PS	213, 223	General Physics - Heat, Sound & Light with Laboratory	4
CY	371	Organic Chemistry	3
CY	372, 374	Organic Chemistry with Laboratory	4
CY	373, 375	Organic Chemistry with Laboratory	5
Approved Electives			4
Physical Fitness			0
		Total Credits	96

Only students having an average of C or higher will be admitted to the College of Pharmacy and/or pharmacy courses. Ninety-six quarter hours or 64 semester

hours of course work are required for admission to the College of Pharmacy. Students deficient in certain basic courses, such as organic chemistry, biology, mathematics, and physics and having at least 96 quarter hours of credit, may be admitted to the College of Pharmacy on approval of the Admissions Committee during any quarter term upon application. However, in such instances the student must make up the deficiencies as soon as possible.

The professional sequence of courses is on an annual basis only beginning in September each year. Students transferring to pharmacy and planning to enter at times other than September should contact the Admissions Committee, College of Pharmacy, J. Hillis Miller Health Center, for a program of study.

PHYSICAL EDUCATION AND HEALTH

University College students expecting to earn a degree in the College of Physical Education and Health should pursue one of the following programs:

A. For Men intending to major in Physical Education

Freshman Year		*Credits*
CSS	111, 112, 113 American Institutions	9
CEH	131, 132, 133 Comprehensive English	9
CLC	141, 142 Comprehensive Logic	4
CMS	171 Fundamental Mathematics	4
PHA	100 Team Sports for Men	2
PHA	101 Soccer and Related Sports for Men	2
PHA	126 Swimming	3
PHA	207 Gymnastics for Men	3
PHA	224 Golf	2
PHA	261 Individual and Family Health	5
Second Teaching Field Electives		8-12
Physical Fitness		0
		51-52

Sophomore Year		*Credits*
CPS	121, 122 The Physical Sciences	7
CPS	123 or CLC 143	3-2
CHN	251, 252, 253 The Humanities	12
CBS	261, 262, 263 Biological Sciences	9
PHA	201 Football Fundamentals	3
PHA	202 Basketball Fundamentals for Men	3
PHA	203 Track and Field for Men	2
PHA	205 Wrestling and Conditioning Programs	2
PHA	225 Tennis	2
PHA	266 First Aid and Medical Self-Help	3
Second Teaching Field Electives		6
Physical Fitness		0
		51-52

B. For Women intending to major in Physical Education

Freshman Year		*Credits*
CSS	111, 112, 113 American Institutions	9
CEH	131, 132, 133 Comprehensive English	9
CLC	141, 142 Comprehensive Logic	4
CMS	171 Fundamental Mathematics	4
PHA	111 Soccer and Related Sports for Women	2
PHA	113 Track and Field for Women	2
PHA	114 Softball for Women	2
PHA	126 Swimming	3
PHA	231 Folk and Social Dance	3
PHA	261 Individual and Family Health	5
Second Teaching Field Electives		8
Physical Fitness		0
		51

Sophomore Year		*Credits*
CPS	121, 122 The Physical Sciences	7
CPS	123 or CLC 143	3-2
CHN	251, 252, 253 The Humanities	12
CBS	261, 262, 263 Biological Sciences	9
PHA	210 Volleyball and Field Hockey for Women	3
PHA	217 Gymnastics for Women	3
PHA	220 Recreational Sports	3
PHA	224 Golf	2
PHA	225 Tennis	2
PHA	232 Modern Dance	3
Second Teaching Field Electives		5-6
Physical Fitness		0
		52

C. For Men and Women intending to major in Health Education

	Freshman Year	*Credits*
CSS	111, 112, 113 American Institutions	9
CEH	131, 132, 133 Comprehensive English	9
CLC	141, 142 Comprehensive Logic	4
CPS	121, 122, Physical Sciences	7
PHA	261 Individual and Family Health	5
BTY	180 Introductory Botany	5
Approved Electives		10
Physical Fitness		0
		49

	Sophomore Year	*Credits*
CHN	251, 252, 253 The Humanities	12
MS	102 Algebra and Trigonometry	5
CY	201 Introductory Chemistry	4
ZY	201 Introductory Zoology Laboratory	4
BTY	375 Economic Botany	3
BCY	300 Bacteria in Everyday Life	4
SY	201 Principles of Sociology	4
PHA	262 Community and Environmental Health	4
PHA	266 First Aid and Medical Self-Help	3
Approved Electives		6
Physical Fitness		0
		49

D. For Men and Women intending to major in Recreation

	Freshman Year	*Credits*
CSS	111, 112, 113 American Institutions	9
CEH	131, 132, 133 Comprehensive English	9
CLC	141, 142 Comprehensive Logic	4
CPS	123 or CLC 143	3-2
MSC	260 Music Skills	4
PHA	204 Baseball for Men or PHA 114 Softball for Women	2
PHA	203 Track and Field for Men or PHA 113 Track and Field for Women	2
PHA	220 Recreational Sports	3
Electives		12
Physical Fitness		0
		48

	Sophomore Year	*Credits*
CHN	251, 252, 253 The Humanities	12
CBS	261, 262, 263 Biological Sciences	9
CMS	171 Fundamental Mathematics	4
CPS	121, 122 Physical Sciences	7
PHA	231 Folk and Social Dance	3
PHA	100 Team Sports for Men	2
PHA	245 Leadership in Recreation	4
Electives		8-9
Physical Fitness		0
		49

The Upper Division

College of Agriculture

The aim of the College of Agriculture is to provide students with the best education possible for service in agricultural business, technology, and science.

The departments in the College are: Agricultural Economics, Agricultural Education and Extension (administered jointly with the College of Education), Agricultural Engineering, Agronomy, Animal Science, Bacteriology, Botany, Dairy Science, Entomology and Nematology, Food Science, Fruit Crops, Ornamental Horticulture, Plant Pathology, Poultry Science, Soils, Vegetable Crops, and Veterinary Science.

REQUIREMENTS FOR ADMISSION

To enter the College of Agriculture students should have completed the courses indicated in the program for freshman and sophomore years in the University College, or their equivalent in credits from other institutions. Curricula of the various departments of the College of Agriculture should be referred to for some special requirements.

BACHELOR OF SCIENCE IN AGRICULTURE BASIC CURRICULUM

In addition to the 96 credits required for entrance to the College of Agriculture, 102 credits must be earned in the College of Agriculture curriculum for a combined total of 198 credits required for the Bachelor of Science in Agriculture degree. The following curriculum common to all areas of agriculture designates specific requirements and electives for the degree Bachelor of Science in Agriculture. Some of these courses may be taken as electives in the lower division. It is especially important that students in junior colleges, planning to transfer to the College of Agriculture, select courses from the core requirements as electives.

CURRICULUM—COLLEGE OF AGRICULTURE—102 CREDITS
CORE REQUIREMENTS—18-19 CREDITS

AREA OF STUDY	*COURSES*	*CREDITS*
Communications and/or Social Sciences		8
	Electives—selected from SCH 201, EH 403, EDX 301, SY 201, PSY 201, ES 201, Mod. Lang. or equivalent	
Physics		6
	Electives—PS 120, or equivalent	
Chemistry*		4-5
	Electives—CY 204, BTY 370, or equivalent	

OTHER REQUIREMENTS AND ELECTIVES—83-84 CREDITS

Requirements and electives in student's major department	min. 20—max. 40
Requirements or electives selected from at least five agricultural departments other than student's major	20
Free and approved electives	24—44
TOTAL	102 credits

*Substitutions for Chemistry may be from the Biological, Physical and Social Sciences or Mathematics areas for students majoring in Agricultural Economics (AS), Mechanized Agriculture (MCA), or Agricultural Business Specialization. Students who have previously completed the minimum requirements listed for a specific area of the curriculum core may make appropriate substitutions within the areas or they may substitute other electives approved by their counselors.

AREAS OF SPECIALIZATION

Students in agriculture may specialize in one of three broad areas of knowledge—Agricultural Science, Agricultural Technology, and Agricultural Business, all within the framework of 198 credits for the degree Bachelor of Science in Agriculture.

For a specialization in Agricultural Science at least 18 credits of the 198 total are required in one or more of the areas of the Physical (CY, GY, PS) and Biological Sciences (BCY, BTY, EY, PT, AY 362) and Mathematics (MS); in addition to those required in the University College and those in the Agricultural College curriculum core.

For a program in Agricultural Technology a choice of courses in applied agriculture is planned by the separate departments of the College of Agriculture in areas of the student's special interest.

For Agricultural Business Specialization at least 20 credits of the 198 total required must be completed from the areas of Agricultural Economics (AS) and Business Administration (ATG, ES, FI, MGT, MKG), in addition to those required in the University College and those in the Agricultural College curriculum core, plus a departmental major.

The chairman of the department in which the student majors (or his appointee) will act as the student's advisor, assist the student in arranging his course of study, and make necessary recommendations to the Dean. The student's courses for each quarter are subject to the approval of the Dean and the Department Chairman.

It is required that all students graduating in agriculture take at least 20 credits in five agricultural departments other than student's major.

The Department of Veterinary Science offers service courses, but no curriculum leading to the D.V.M. or baccalaureate degree. Students interested in a degree in this field should consult with the Dean regarding courses which are acceptable substitutes for requirements in certain schools of veterinary medicine.

CREDIT FOR PRACTICAL WORK

By previous arrangement with the chairman of the department and the Dean, students may, during their course of study, do practical work under competent supervision in any recognized agricultural or related pursuit, and upon returning to the College and rendering a satisfactory written report showing faithful service, will be entitled to one credit for each month of such work. Such credits may not total more than three. Practical work is especially important for students who have no farm experience. Even though they cannot procure employment under such competent supervision as will give college credit, they should secure work along the line in which they are majoring. Faculty members will assist as much as possible in securing such vacation employment.

DEAN'S LIST AND GRADUATION WITH HONORS OR HIGH HONORS

A student who carries 15 hours per quarter with a grade point average of 3.3 or better and no grade less than C in any course will have his name placed on the Dean's List for that quarter.

Students completing the requirements for the B.S. in Agriculture degree are eligible to be considered for graduation with Honors or High Honors.

To graduate with Honors a student must have completed at least 45 hours in the College of Agriculture with a grade point average of 3.3 or above and be recommended by the Awards and Honors Committee of the College of Agriculture.

To graduate with High Honors the same requirements apply as for Honors except that the grade point average must be 3.6 or above.

GRADUATE TRAINING IN AGRICULTURE

The College of Agriculture offers five advanced degrees: Master of Agriculture and Master of Science in Teaching (Non-thesis), Master of Science in Agriculture, Master of Science, and Doctor of Philosophy.

Students contemplating graduate study should consult with their counselor as early as possible to insure proper program planning.

Admission to graduate study is normally limited to those students who have maintained at least a 2.75 grade point average in their Upper Division work and 3.0 in their major subject. For majors in General Agriculture, the minimum is 2.85. Also, a satisfactory score on the Graduate Record Examination is required.

PROGRAM IN TROPICAL AGRICULTURE

A program has been developed in the College of Agriculture which offers the student an opportunity to take a concentration of study in Tropical Agriculture while majoring in a Department of the College. The program provides training in the important phases of agriculture as encountered in tropical areas of the world.

Students who wish to develop a program in Tropical Agriculture will elect, with the aid and counsel of their departmental advisor, courses in the various departments within the College of Agriculture which deal specifically with agriculture in the tropics.

CURRICULA
AGRICULTURAL ECONOMICS

Four curricula are offered by the Department of Agricultural Economics. The curriculum selected by the student will depend upon the nature of his interest in the field. Students should consult the chairman of the department or the departmental counselor for guidance in making their choice of a curriculum and for approval of electives.

CURRICULUM I—AGRICULTURAL ECONOMICS

This curriculum is designed for those students interested primarily in training as professional agricultural economists or in preparing for graduate study.

Requirements in College of Agriculture Curriculum Core—20 Credits

ES	201 Basic Economics	5 hours
ES	302 Micro Economic Theory*	3 hours
MS	301 Analytic Geometry and Calculus**	5 hours
	Other Core Requirements	7 hours

Departmental Requirements—30 Credits

AS	301 Principles of Agric. Econ.	5
AS	310 Farm Firm Management	4
AS	320 Marketing	5
AS	401 Agricultural Economics Seminar	1
AS	425 Agric. Price Analysis and Consumer Behavior	4
AS	440 Public Policy in Agric.	4
	Electives in Agriculture Economics	7

Other Requirements and Electives—52 Credits

ES	301 Macro Theory	3
STA	320 Introduction to Statistics	4
STA	420 Sampling	3
MS	302 Analytic Geometry and Calculus 2	5
	Free and Approved Electives	37***

*Es 302 is a substitute for chemistry in College core.

**MS 301 is a substitute for physics in College core.

***A total of 20-25 hours in five departments in agriculture are required outside the Department of Agricultural Economics.

CURRICULUM II—AGRICULTURAL BUSINESS MANAGEMENT

This curriculum is designed for those students interested in administrative and service aspects of agriculture or related businesses. Students who elect this curriculum and later decide to do graduate study will be required to take without credit toward a graduate degree courses required under Curriculum I that they have not taken under Curriculum II.

Requirements in College of Agriculture Curriculum Core—20 Credits

ES	201 Basic Economics	5 hours
ES	302 Micro Economic Theory*	3 hours
	Physics**	6 hours
	Other Core Requirements	6 hours

Departmental Requirements—30 Credits

AS	301 Principles of Agric. Econ.	5
AS	310 Farm Firm Management	4
or		
AS	410 Farm Business Analysis	4
AS	320 Marketing	5
AS	401 Agricultural Economics Seminar	1
AS	425 Agric. Price Analysis and Consumer Behavior	4
AS	440 Public Policy in Agric.	4
	Quantitative Methods****	3-4
	Electives in Agricultural Economics	3-4

Other Requirements and Electives—52 Credits

STA	320 Introduction to Statistics	4
ATG & MGT	201 Elementary 202 Accounting	6
	401 Business Law	5
or		
AS	305 Law Applied to Agriculture	4
	Free and Approved Electives	37-38***

*Es 302 is a substitute for chemistry in College core.

**MS 204 or MS 301 is a substitute for physics in College core.

***A total of 20-25 hours in five departments in agriculture are required outside the Department of Agricultural Economics.

****This requirement can be satisfied with AS 565, AS 566, STA 420 or MGT 470.

CURRICULUM III—CO-MAJOR WITH OTHER DEPARTMENTS

Students majoring in other departments who feel the need for a better understanding of the economics of agriculture and the relationship of agriculture to the general economy can also take a Co-Major in Agricultural Economics. The curriculum for such Co-Majors includes 23 quarter hours of required courses in Agricultural Economics, 9 quarter hours in related fields, and 50 hours to meet the requirements of other participating departments and for electives. Elective courses will be selected to *fit the needs and interests of the student.*

Requirements in College of Agriculture Curriculum Core—20 Credits*

Departmental Requirements—23 Credits

AS	301 Principles of Agric. Econ.	5
AS	310 Farm Firm Management	4
or		
AS	410 Farm Business Analysis	4
AS	320 Marketing	5
AS	401 Agricultural Economics Seminar	1
AS	425 Agric. Price Analysis and Consumer Behavior	4
AS	440 Public Policy in Agric.	4

Other Requirements and Electives—59 Credits

STA	320 Introduction to Statistics**	4
ES	201 Basic Economics**	5
	Free and Approved Electives	50*

*Students taking a Co-Major in Agricultural Economics and graduating in some other college will not be required to meet the curriculum core requirements of the College of Agriculture nor will they be required to take 20-25 credit hours in other departments of the College of Agriculture which is required for students graduating in the College of Agriculture.

**ES 201 and STA 320 can be elected by the student to meet the 4-hour chemistry requirement in the curriculum core requirements of the College of Agriculture.

CURRICULUM IV—RURAL SOCIOLOGY

This curriculum is designed to train rural sociologists for teaching, research, and as consultants because of rapid social and economic changes on the national and international levels.

Requirements in College of Agriculture Curriculum Core—20 Credits

Departmental Requirements—23 Credits

AS	301 Principles of Agric. Econ.	5
AS	310 Farm Firm Management	4
or		
AS	410 Farm Business Analysis	4
AS	320 Marketing	5
AS	401 Agricultural Economics Seminar	1
AS	430 Land Economics	4
AS	440 Public Policy in Agric	4

*Other Requirements and Electives—59 Credits**

STA	320 Introduction to Statistics	4
SY	335 Rural Sociology	4
SY	542 Social Research and Investigation	4
SY	571 Population and Public Affairs	4
SY	504 Comparative Sociology	4
	Free and Approved Electives**	39

*SY 201, Sociology Foundations of Modern Life, required during second year.

**A total of 20-25 hours in five departments in agriculture are required outside the Department of Agricultural Economics. All elective courses must have the approval of the Dean of the College of Agriculture.

AGRICULTURAL AND EXTENSION EDUCATION

The curriculum in Agricultural and Extension Education is a joint program of the College of Agriculture and the College of Education. It is designed to offer the student a combination of courses in technical agriculture and in professional education which will meet requirements for future employment and advanced study in the field of agricultural and extension education. Students majoring in this department will be counseled by the department chairman or his appointee to be sure that the courses in their program meet the requirements.

Students registering in this curriculum will take the program of study recommended in the University College for Agricultural and Extension Education.

All students enrolling in this program will need to satisfy the College of Agriculture core requirements. In addition, it will be necessary to take courses in a minimum of five different departments within the College of Agriculture, as well as courses in professional education from the College of Education.

The student planning to qualify to teach in the public schools will complete a minimum of 46 quarter hours from the following list of professional courses. Those courses indicated by an asterisk (*) are required.

A program for preparation in agricultural extension will be designed by the student's advisor.

EDV	302*	Principles of Vocational Education	4
EDV	303*	Methods in Vocational Education	4
EDV	420*	Program Planning in Vocational Education	4
EDV	421*	Special Methods in Teaching Agriculture	4
EDV	423*	Lab Practices in Teaching Agriculture	4
EDV	405*	Student Teaching in Vocational, Technical and Adult Education	4-16
EDF	345*	Human Growth and Development	5
EDS	400*	The Secondary School Today	5
EDX	301	Agricultural Leadership	4
EDX	407	Agricultural Youth Programs	4
EDX	430	Individual Work in Agricultural and Extension Education	1-8

The following courses in applied agriculture will be required:**

MCA	303	Agricultural Mechanics 1	4
MCA	407	Agricultural Mechanics 2	5

AS	301	Principles of Agricultural Economics	5
AL	309	General Animal Science	4
PLS	201	Fundamentals of Crop Production	4
SLS	330	General Soils	5
BTY	370	Organic and Biological Chemistry	5
EY	301	Principles of Entomology	4
Electives in Agriculture			21

**Substitutions within the technical agriculture and professional education course requirements must be approved by the department chairman.

AGRICULTURAL ENGINEERING

BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING

The agricultural engineering curriculum is offered cooperatively by the College of Agriculture and the College of Engineering. Students in this major receive basic training in engineering and agriculture so that they are prepared to solve the specialized and unique engineering problems of agricultural production and processing systems and the management and conservation of agricultural land and water resources. Since engineering problems in agriculture relate to biological production and processing of biological products, training in agricultural and biological courses is obtained. Students desiring careers in agricultural engineering will register in the College of Engineering. See College of Engineering for curriculum.

AGRONOMY

(See Plant Sciences)

ANIMAL SCIENCE

Curricula in Animal Science meet the educational requirements for those interested in options in Animal Science, Dairy Science—Production, Poultry Science and Laboratory Animal Science. The curricula are designed to give students a foundation in the basic sciences while permitting them to select an option of concentrated study in one of these four areas. The curriculum in Animal Science gives fundamental training in the various phases of the production of beef cattle, dairy cattle, poultry, turkeys, swine, horses and sheep. Consideration is given to the packing house industry and the grading and marketing of meat and poultry products. Training is also given for those contemplating going into the feed industry. The Laboratory Animal Science curriculum is designed to train students for jobs managing small animal colonies in medical, pharmaceutical, feed industry, and other laboratories. Early in their college careers, students should contact the chairman of the department of their preferred option for advice on the curriculum available.

College of Agriculture Core Requirements			18 to 19 credits
Animal Science Core Requirements			
AY	432	Forage and Pasture Science*	5
SLS	330	General Soils*	5
ADP	311	Introduction to Animal Science	5
ADP	322	Animal Genetics	5
ADP	312	Feeds and Feeding	5
ADP	421	Seminar	1
VY	321	Anatomy and Physiology	5
AY	362	Genetics	4
BCY	302	Basic Biology of Microorganisms	5
AS	303		
or	310	Agricultural Accounting or Farm Firm Management	4
CY	204	General Chemistry and Qualitative Analyses	4
BTY	370	Elementary Organic and Biological Chemistry	5
			53

*Students selecting the Poultry Science and Laboratory Animal Science option do not need to take AY 432 and SLS 330. Those selecting the Laboratory Animal Science option may also omit ADP 311 but should elect one Animal Science course.

Requirements for options in Animal Science	12 to 29
Free and approved electives	12 to 20

The student will, with the advice of the subject matter department chairman or advisor, select a minimum of 12 credits of courses in his special field of interest. These, along with approved electives in supporting work, will constitute a departmental option.

ANIMAL SCIENCE

Students selecting the Animal Science option are required to take 12 hours in the following courses: AL 411, AL 413, AL 414, AL 415, AL 419 and AL 423.

DAIRY SCIENCE–PRODUCTION

Students selecting the Dairy Science option are required to take DY 301, DY 405, ADP 435, DY 501 and either DY 401* or DY 402*.

LABORATORY ANIMAL SCIENCE

Students selecting the Laboratory Animal Science option are required to take AL 332, AL 431, VY 405, ADP 420, EY 301, MGT 350 and ZY 309.

POULTRY SCIENCE

Students selecting the Poultry Science option are required to take 15 hours from the following courses: PY 312, PY 317, PY 415, ADP 420, PY 514 and PY 522.

Furthermore, it is the prerogative of the student to select additional courses which will satisfy a specialization in Science, Technology or Business in his field of major interest.

*These courses are listed under Food Science in section for Departmental Courses.

BACTERIOLOGY

The curriculum in bacteriology is designed to give students fundamental training in the field of microbiology, particularly emphasizing the bacteria, but including the viruses, rickettsiae, yeasts, and molds. It provides basic grounding for those wishing to pursue graduate work. The departmental major may lead to a degree in either the College of Agriculture or the College of Arts and Sciences. In Agriculture, the major in Bacteriology will meet the College requirements for specialization in Agricultural Science.

All interested students should consult a departmental advisor about specific courses as early in the freshman or sophomore year as possible. The following prerequisites to upper division courses should be completed prior to entering the upper division: CY 371, MS 102, and 2 quarters of a foreign language. These courses may be taken in place of CET 142 and the approved electives listed in the lower division agriculture curriculum; equivalent elective credits will be available in the upper division curriculum (see below).

For a major in Bacteriology, in either Arts and Sciences or in the Agricultural Science Specialization, the following minimum program is offered:

Requirements in Arts and Sciences or Agricultural Core

Arts and Sciences required courses	18 credits
Agricultural Core required courses	18 credits

Departmental Requirements

BCY 302 Basic Biol. of Microorganisms	5
BCY 505 Immunology	4
BCY 506 Bacterial Pathogens	5
BCY 520 Phys. Chem. Microbial	5
BCY 521 Phys. Chem. Microbial	5
	24

Other Requirements and Electives

Required courses	
Arts and Sciences majors	38
Agricultural majors	44
Free and approved electives	
Arts and Sciences majors	16
Agricultural majors	16
	54 or 60

BOTANY

The curriculum in botany is designated for students both in Agriculture and in Arts and Sciences and leads to a Bachelor of Science degree in either College. It emphasizes training in basic plant science which will prepare the student interested in advanced work in botany and other biological sciences, as well as the student interested in the applied or technical aspects of botany.

While in the University College or Junior College, students who plan to major in botany are advised to take BTY 181 or ZY 202 and BTY 182 or BTY 203 and ZY 201 or their equivalents, a year of chemistry and a year of mathematics or their equivalents. Those students planning a degree in Arts and Sciences should in addition begin a foreign language. All interested students should consult with the department advisor about specific courses as early as possible in the freshman or sophomore year.

For a major in botany, in either Arts and Sciences or in the Agricultural Science Specialization, the following minimum program is offered:

Requirements in Arts and Sciences or Agricultural Core

Arts and Sciences required courses	36 credits
Agricultural Core required courses	18-19 credits

Departmental Requirements

BTY 342 Local Flora	3
or	
(BTY 542 Taxonomy of Seed Plants	5)
BTY 310 Elementary Plant Physiology	5
BTY Electives in Botany	18-23
	26-31

Other Requirements and Electives

Required Courses	
Arts and Sciences majors	15
Agriculture majors	20
Free and Approved Electives	
Arts and Sciences majors	14-19
Agricultural majors	27-33
	76-87

DAIRY SCIENCE

(For Dairy Manufacturing see Food Science-General)
(For Dairy Production see Animal Science-General)

ENTOMOLOGY & NEMATOLOGY

Entomology and Nematology are biological sciences dealing with two principal groups of Invertebrate animals. The curricula are designed to give basic training in entomology and nematology and specialized programs in various areas of these two sciences.

College of Agriculture Core Requirements ..... 18-19 Credits

Departmental Requirements
30 Credits

EY	301 Principles in Entomology	4
EY	313 Sources in Entomology	1
EY	314 Undergraduate Seminar	1
EY	408 Insect Morphology	5
EY	460 Insect Identification	5
Entomology Electives		14

Other Requirements and Electives
53-54 Credits

Electives in Agriculture	20
Electives in Biological Science	12
Suggested Courses—AY 362 ZY 308	
Other Electives	21-22

FOOD SCIENCE

The Food Science curriculum is designed to provide an understanding of how basic sciences and engineering are applied to the handling, processing, manufacturing, marketing and utilization of human foods. Wholesomeness, nutritive value, convenience and availability of foods are emphasized. Ample opportunity is offered for electing courses in areas of special interest, such as food processing and manufacturing technology; management or sales in the food business; and graduate study and research in Food Science or related fields. The interested student should consult with a Food Science counselor as early as possible in order to plan the most effective program to meet his academic goals.

	Credits
Requirements in College of Agriculture Curriculum Core	18
(Food Science majors take CY 204)	
Requirements in Food Science Curriculum	
Organic Chemistry	5
BCY 302 Basic Biology of Microorganisms	5
STA 320 Introduction to Statistics	4
Analytical Geometry and Calculus	5
FS 401 Physical Principles of Food Science	5
FS 402 Chemical Principles of Food Science	5
FS 403 Biological Principles in Food Science	5
FS 404 Engineering Principles of Food Science	5
FS 412 Methods of Food Analysis	5
FS 421 Food Science Seminar	1
FS 250 Fundamentals of Human Nutrition or FS 502 Nutritional and Toxicological Aspects of Food Science	4
Electives	35

FRUIT CROPS

(See Plant Science)

GENERAL AGRICULTURE

The curriculum in General Agriculture is designed to give broad basic training in many fields of Agricultural Science, Technology, and Business. It also includes training in the development of improved agricultural practices.

Students interested in the General Agriculture curriculum should consult the Agronomy Department for assistance in program planning to include courses that will satisfy the 18-19 credits required in the College of Agriculture core, appropriate electives, and the following courses:

	Credits
ADP 311 Introduction to Animal Science	5
ADP 312 Feeds and Feeding	5
AS 310 Farm Firm Management	4
AY 301 Principles of Agronomy	3

BCY	300	Bacteria in Everyday Life		5
BTY	310	Elementary Plant Physiology	5	
		or		5
VY	321	Anatomy and Physiology of Domestic Animals	5	
EY	301	Principles of Entomology		4
MCA	306	Farm Machinery		4
PLS	201	Fundamentals of Crop Production		4
PT	301	Lectures in Basic Plant Pathology		2
PT	311	Laboratory in Basic Plant Pathology		3
SLS	330	General Soils		5
		Electives		34-35

LABORATORY ANIMAL SCIENCE

(See Animal Science)

MECHANIZED AGRICULTURE

Students who major in mechanized agriculture become specialists in the area of agricultural machines and management. The curriculum provides basic and practical training relating to agricultural machines, processing systems and structures and mechanized processing and handling systems. Graduates from this program are well prepared for careers in those parts of the agribusiness industry where mechanization of agicultural production and operations are involved. Consultation with counselors in the Department of Agricultural Engineering permits the students to wisely select elective courses so that their career objectives are satisfied.

For a major in mechanized agriculture the following program is offered.

Requirements in the College of Agriculture Curriculum Core—21 Credits.

(Mechanized Agriculture Majors take *PS 211-221)

Requirements in Mechanized Agriculture—24 Credits

MCA 301	Agricultural Water Management	4	
MCA 303	Agricultural Mechanics 1	4	
MCA 306	Farm Machinery	4	
MCA 401	Farm Buildings	4	
AGE 403	Special Topics	3	
MCA 404	Engineering Principles of Food Science 1	5	

Other Requirements and Electives—57 Credits

*MS 301	Analytic Geometry and Calculus 1	5	
EY 301	Principles of Entomology	4	
SLS 330	General Soils	5	
*PS 212-222	General Physics	4	
*PS 213-223	General Physics	4	
AS 310	Farm Firm Management	4	
**Free and approved electives		31	

*These courses should be taken as electives during the first two years.

**Approved electives within the 198 credits required include the following courses: AL 309, MKG 352, MGT 310, MGT 401, FC 341, PLS 201, AY 311, and others.

ORNAMENTAL HORTICULTURE

(See Plant Science)

PLANT PATHOLOGY

The curriculum in Plant Pathology permits students to learn the principles of Plant Pathology and their applications to scientific agriculture. The following program is offered for a major in Plant Pathology with specialization in either Agricultural Science or Agricultural Technology.

		Credits
Core Requirements in the College of Agriculture Curriculum		18-19
Departmental Requirements		20
PT 301 Lectures in Basic Plant Pathology	2	
Corequisite:	3	
PT 311 Laboratory in Basic Plant Pathology, or		
PT 312 Laboratory in Tropical Plant Pathology, or		
PT 313 Laboratory in Forest Pathology		
PT 303 Principles of Nematology	4	
*PT 401 Biology of Plant Infections	5	
*PT 500 Problems in Plant Pathology	2-3	
*PT 501 Intermediate Plant Pathology	5	
PT 502 Principles of Plant Disease Control	3	
PT 531 Introductory Mycology	5	
PT 540 Transmission of Plant Pathogens by Vectors	3	
*PT 541 Tropical Plant Pathology	4	
*Departmental Electives		
Other Requirements		29
AY 362 Genetics	4	
BCY 302 Basic Biology of Microorganisms	4	
BTY 182 General Botany	3	
BTY 310 Elementary Plant Physiology	5	
EY 301 Principles of Entomology	4	
PLS 301 Plant Propagation	4	
SLS 330 Soils	5	
Approved Electives		34-35

PLANT SCIENCES

(Agronomy, Fruit Crops, Ornamental Horticulture, Vegetable Crops)

In addition to the departmental options in Agronomy, Fruit Crops, Ornamental Horticulture and Vegetable Crops, a curriculum is available for students interested in majoring in the broad area of Plant Science. The curriculum is designed to give an adequate foundation in both the basic and applied plant sciences.

Students desiring to major in Plant Science must take the core requirements of the College of Agriculture and Plant Science and a minimum of 20-30 hours of approved electives in the applied plant sciences. These electives should be selected with the advice and approval of the Chairman of the Plant Science curriculum.

		Credits
Core Requirements of the College of Agriculture		18-19
Core Requirements of Plant Science		36
PT 301 Basic Plant Pathology	5	
EY 301 Principles of Entomology	4	
SLS 330 General Soils	5	
AY 362 Genetics	4	
BTY 310 Elementary Plant Physiology	5	
BTY 370 Elementary Organic and Biological Chemistry	5	
PLS 201 Fundamentals of Crop Production	4	
PLS 301 Plant Propagation	4	
Approved Electives: PLS, AY, FC, OH, VC		20-30
Free Electives		18-27

AGRONOMY

Plant Science students who select an option in Agronomy receive scientific and technical training in field and forage crop production and utilization, genetics, and plant breeding. Strong training is included in supporting areas of the basic sciences. Each student interested in Agronomy should consult the Agronomy Department as early as possible in his university career for assistance in program planning.

		Credits
Core Requirements of the College of Agriculture and of Plant Science		54-55
Departmental Requirements		15
AY 301 Principles of Agronomy	3	
AY 484 Agronomy Seminar	1	
Electives in Agronomy	11	
Other Requirements		3 or 4
*PLS 452 Field Plot Technique	3	
**STA 320 Introduction to Statistics	4	
Approved Electives		28-30

Science Specialization:

BCH 402-403-404; BCY 302; BTY 515; BTY 532; CY 331; CY 371-372-373-374-375; EH 403; MS 301; MS 302; PS 212-222.

Technology Specialization:

AY 432; ADP 312; AS 310; EY 303; MCA 306; SLS 426; PLS 442; VY 321.

Business Specialization:

AS 303; AS 304; AS 310; AS 320; AS 410; ATG 201; FI 322; MGT 310; MGT 401; PSY 201.

*Technology and Business Specializations

**Science Specialization

Each student has the prerogative of choosing approved electives from the respective group of courses listed above to meet the requirements of a specialization in Science, Technology, or Business in Agronomy.

FRUIT CROPS

Plant Science majors selecting an option in Fruit Crops receive a broad foundation in the science and technology of fruit production, handling and marketing, with emphasis on citrus and tropical fruits. Programs of study leading to specializations in technology, science and business are available. It is important that students consult with the departmental counselor as early in their university careers as possible.

Core Requirements of the College of Agriculture and of Plant Science		54-55
Departmental Requirements		20
FC 335 Introduction to Citrus Culture	4	
FC 403 Physiology of Fruit Production	4	
FC 437 Citrus Maturity and Packinghouse Procedure	4	
FC 441 Citrus Production	4	
FC 450 Fruit Crops Laboratory 1	2	
FC 451 Fruit Crops Laboratory 2	2	
Approved Electives		27-28

For the Agricultural Technology Specialization students must select appropriate electives in technical agriculture and related courses to give them the proper background for careers in fruit production.

Those choosing the Agricultural Science Specialization will select electives in mathematics, physics, chemistry, and biology as a background for graduate work and careers in research, teaching and extension.

For the Agricultural Business Specialization students will select approved electives in the fields of business, economics and management.

ORNAMENTAL HORTICULTURE

Plant Science majors selecting an option in Ornamental Horticulture receive scientific or technical training in the production of flower, foliage, nursery and turf crops. Students should consult a departmental counselor as early in their university career as possible.

	Credits
Core Requirements of the College of Agriculture and of Plant Science	54-55
Departmental Requirements	28
OH 331 Fundamentals of Ornamental Plant Classification	4
OH 332 Identification of Basic Ornamental Plants or	4
OH 333 Herbaceous and Exotic Plant Materials	4
OH 364 Relationships of Ornamental Plants to the Urban Environment	3
OH 403 Ornamental Horticulture Seminar	1
OH 420 Principles of Nursery Operations or	4
OH 421 Arboriculture	3
OH 441 Physiological Aspects of Ornamental Plant Production	4
OH 442 Cut Flower Production or	3
OH 443 Production of Foliage, Fern, and Potted Plants	3
OH 462 Management of Southern Turfgrasses	4
OH 499 Special Topics and Independent Study in Ornamental Horticulture Type A	4
Approved Electives	19-20

Emphasis on science, technology or business training on the basis of student career interest is possible by proper selection of electives under supervision of the departmental counselor.

LAE 353 may be taken for OH major credit.

VEGETABLE CROPS

The option in Vegetable Crops is designed to give the student an adequate foundation of basic plant science which, together with specific courses in the principles of production and marketing of vegetables, will prepare them for primary employment in any phase of the specialized vegetable industry.

	Credits
Core Requirements of the College of Agriculture and of Plant Science	54-55
Departmental Requirements	20

Students selecting the Vegetable Crops options are required to take 20 credit hours selected on the advice of the faculty advisor from the following courses: VC 405, VC 411, VC 412, VC 499, VC 506, PLS 442, FC 442.

Approved Electives	27-28

Sufficient elective hours enable students to study in agricultural science or business specialization.

POULTRY SCIENCE

(See Animal Science)

SOILS

The Department of Soils offers two curricula designed to meet the specific needs of the individual. Students should consult the chairman of the department or the departmental counselor for approval of electives in their field of specialization.

Soil Science

This program of study emphasizes the basic sciences. Students can qualify for graduate study and research in Soil Fertility, Soil Chemistry, Soil Microbiology, Soil Physics, or Soil Genesis and Classification by a careful selection of elective courses.

Requirements in College of Agriculture Curriculum Core—20 Credits

(Students selecting this curriculum must take PS 211-221, 212-222, and CY 204).

Departmental Requirements
22 Credits

SLS 330	General Soils	5
SLS 421	Soil Chemistry	4
SLS 422	Soil Microbiology	4
SLS 423	Soil Genesis & Classification	3
SLS 424	Soil Physics	4
Electives in Soils		2

Other Requirements and Electives
60 Credits

GY 201	Geology I	3
BCY 300	Microbiology	5
BTY 310	Elementary Plant Physiology	5
MS 301	Analytic Geometry and Calculus I	5
PS 213-223	Gen. Physics, Heat, Sound, Light	4
CY 331	Quantitative Analysis	4
Approved Electives in Agriculture		8
Free and Approved Electives*		26

*Suggested electives:
EY 301, EY 303, PT 301, CY 362-363, CY 341-342 or CY 451-452-453, GY 407, GY 408, GY 418, MS 302, BTY 501, GPY 300, SLS 426, SLS 427, SLS 428, SLS 430.

Soil Technology

This program of study is designed primarily for the student who desires employment in one of the many applied fields of agriculture after obtaining the bachelor's degree. By a careful selection of electives, one may prepare for a career according to his specific interests.

Requirements in College of Agriculture Curriculum Core—18-19 Credits

Departmental Requirements
26 Credits

SLS 330	General Soils	5
SLS 421	Soil Chemistry	4
SLS 422	Soil Microbiology	4
SLS 426	Fertilizers & Assoc. Soil Reactions	4
SLS 427	Soils of Florida	3
Electives in Soils		6

Other Requirements and Electives
57-58 Credits

MCA 301	Agricultural Water Management	4
AY 432	Forage and Pasture Science	5
FC 341	Citrus Growing	4
BCY 300	Microbiology	5
EY 301	Principles of Entomology	4
PT 301	Basic Plant Pathology	5
Free and Approved Electives*		30-31

*Suggested Electives:
AL 309, CY 331, EH 302, PLS 201, GPY 300, GY 201, GY 202, SLS 423, SLS 424, SLS 428, AS 310, PLS 301.

VEGETABLE CROPS

(See Plant Science)

College of Architecture and Fine Arts

GENERAL STATEMENT

The College of Architecture and Fine Arts provides instruction for students who seek professional careers in the Building Arts and the Fine Arts; it offers to other students of the University creative and cultural opportunities in these arts; and it performs appropriate related services for the citizens of Florida. The College has developed from the School of Architecture established in 1925. Its organization now includes—the Division of Building Arts, with Departments of Architecture and Building Construction; the Division of Fine Arts, with Departments of Art and Music; the Bureau of Research; the University Center of the Arts, and the University Gallery.

PROGRAMS

Professional Instruction—The College offers professional curricula leading to appropriate undergraduate degrees in:

Architecture (pre-professional)
Interior Design
Landscape Architecture
Building Construction
Music
Music Education
Fine Arts
(Creative Photography, Painting, Printmaking, Sculpture)
History of Art
Crafts
Advertising Design
Art Education

The College also offers at the Graduate level professional programs in Architecture, Art, Building Construction and Music Education. Each undergraduate and graduate program stresses thorough mastery of the principles underlying its field and the development of professional skill in their creative application to practice.

Instruction for Majors.—Major programs of study in Art and Music, leading to the degree of Bachelor of Arts, are offered by the departments of this college. Requirements for this degree are described under the College of Arts and Sciences.

General Courses.—The College offers courses open to all students of the University who wish to broaden their cultural background in the arts.

Public Programs.—The College sponsors each year numerous public lectures, concerts, exhibits, festivals, special conferences, and clinics in which faculty and eminent visiting scholars and practitioners participate. The University Center of the Arts administered by the College, presents public exhibitions of outstanding works in the visual arts, both fine and applied.

Bureau of Research.—The Bureau is one of the activities of the College of Architecture and Fine Arts. It fosters and encourages research in all areas of the building arts and fine arts. It also provides an opportunity for graduate students and faculty members to engage in research and cooperate effectively in research with other University departments and institutions.

LIBRARY FACILITIES

The University Libraries and the Architecture and Fine Arts Library together provide an important working collection of publications and audio-visual materials for undergraduate and graduate studies. These resources include books, leading American and foreign periodicals, color prints, and slides. There is an extensive collection of published and recorded music of all types. Music listening rooms allow convenient use of these materials.

COUNSELING

Students planning to major in any program of study in the College of Architecture and Fine Arts should see the proper Upper Division departmental chairman or adviser as soon as possible in their college program.

The counseling program of the College is designed to make available to all students at the Lower and Upper Division and the graduate levels, the services of faculty members highly qualified in their respective professions who can assist in the selection of a field of study, give understanding and sympathetic counsel regarding the student's personal or academic problems, and advise on the selection of employment after graduation and problems arising in these several fields.

STUDENT AID

Students interested in part-time employment, assistantships, scholarships, fellowships, loans, prizes, and awards are referred to the special bulletin distributed by the Student Financial Aid Office, University of Florida, Gainesville, Florida.

PRACTICAL EXPERIENCE

Students are urged to obtain before graduation some experience in the employ of practicing professionals in their particular field, or in some allied work which will give an insight into the problems of professional practice. Such employment provides an introduction to the methods of actual practice, and enables the student to derive increased benefit from advanced work in school. Students should seek the counsel of their faculty adviser as to the type of practical experience best suited to their individual needs.

FIELD TRIPS

Each year a number of field trips are arranged to give students an opportunity to broaden and extend their educational experience through study of construction projects of unusual interest or of outstanding works of architecture and art. Students frequently combine such studies with attendance at state and national meetings of the professional organizations in their respective fields.

TEACHERS' CERTIFICATE

The College offers courses leading to certification for teaching Art or Music in the public schools in grades K through 12 in the State of Florida. Regulations describing certification of teachers are published by the State Department of Education and it is imperative that all students who expect to be certified familiarize themselves with these regulations. Application for certification should be made immediately after graduation, and should be addressed to the College of Education.

STUDENT WORK

The College reserves the right to retain student work for the purpose of record, exhibition, or instruction.

STUDENT ORGANIZATIONS

Student organizations take an active part in the educational program of the College. Included in these organizations are the Florida Art Society, the Gargoyle Society, Sigma Lambda Chi, the Students' Contractors and Builders Association, the student chapter of the American Institute of Architects, Tau Sigma Delta, the Music Educators National Conference student member Chapter No. 257, Kappa

Kappa Psi, Tau Beta Sigma, Phi Mu Alpha Sinfonia and Sigma Alpha Iota. The College encourages and assists students in promoting close relations with professional groups and societies in the several fields.

GRADUATE DEGREES

The Graduate School offers the degrees of Master of Arts in Architecture, Master of Science in Building Construction, Master of Fine Arts, and Masters in Education with a major in Music Education. To meet the needs and goals of each student, graduate programs are prepared individually in consultation with a designated member of the Graduate Faculty of the College of Architecture and Fine Arts. For further information see the *Graduate School Catalog.*

Architecture.—The area of specialization may be in architectural design, architectural research, building construction, or structural design of buildings. Holders of the five-year undergraduate degree in Architecture may normally complete the requirements for the master's degree in one calendar year; however, an additional quarter is usually necessary.

Those students with a Bachelor of Design (Architecture) degree who wish to obtain a professional degree in architecture must pursue the two-year graduate program which is a prerequisite for seeking licensing for architectural practice. It permits further study in specialized areas through individual programs of study devised in accord with the students' interests.

Art.—The major is in Fine Arts. Although holders of the Bachelor of Fine Arts degree may technically complete the requirements in one academic year, two years are normally required.

Building Construction.—The area of specialization may be in areas of construction materials, techniques, management or research, or structural design of buildings. Holders of the four-year undergraduate degree in Building Construction or its equivalent may normally complete the requirements for the master's degree in one academic year.

Music.—The Department of Music cooperates with the College of Education in offering courses leading to the degree Master of Education with a major in music education. The prospective candidate for the degree, in addition to the general requirements for admission to the Graduate School, must satisfy admission requirements in the areas of Applied Music, Music Theory, Music History and Literature, and Conducting, and satisfy requirements for music teaching certification in Florida. The certification requirement may be waived for admission, but must be satisfied before degree is awarded. All deficiencies must be remedied.

UNDERGRADUATE CURRICULA ADMISSION

Admission Requirements.—To be eligible for admission to the College of Architecture and Fine Arts, the student is required to have at least a 2.0 (C) average in all Lower Division courses required for the curriculum he desires to enter. Additionally, he must pass all pre-professional courses with a minimum grade of "C" within that Lower Division curriculum. Specific grade point requirements and minimum grades required for the various curricula may be found in the appropriate department office. A student admitted from another institution of higher learning who does not meet these requirements may be accepted conditionally to the College of Architecture and Fine Arts and given a "Provisional Program of Study" in the curriculum he desires to enter by the Departmental Chairman or his adviser. If the student does not complete this program as specified he shall be ineligible for admission to the College.

The Committee on Admissions of the College will consider requests for admission from students who do not meet the conditions stated above. However, students whose records in the Lower Division do not indicate that they are qualified to pursue with profit the professional work of the Upper Division will not be admitted to the College.

Transfer Students.—Transfer students who wish to enter the College of Architecture and Fine Arts are referred to the Board of University Examiners in accordance with provisions of the section of this catalog entitled Admissions.

MAXIMUM AND MINIMUM LOADS

Fifteen to eighteen quarter hours in any regular quarter shall be considered a *normal load.* A student may be permitted to register for more than eighteen quarters hours when, in the opinion of his adviser, the quality of his record justifies this. The *minimum load* for a full-time student in the University during a regular quarter is 12 hours. At the time of registration a student, with the approval of the Dean, may register for less than twelve quarter hours. If a student wishes to drop courses during the quarter, thereby reducing his load below twelve quarter hours, he must have the approval of the College Committee on Student Petitions.

NORMAL ACADEMIC PROGRESS

The student will have maintained normal academic progress when he earns a minimum grade point of 2.0 (C) average for all work attempted in the Upper Division. In addition, he is required to take courses in a sequence as specified by his departmental chairman or adviser. The student may be excluded from a program of study in the College of Architecture and Fine Arts if he fails or refuses to maintain normal academic progress.

DEAN'S HONOR LIST

Undergraduate students who demonstrate excellence in their academic work by completing a full course load (minimum of 12 quarter hours credit) in a quarter term and achieving a grade point average of 3.5 or better will earn a position on the Dean's Honor List.

GRADUATION REQUIREMENTS

To be eligible for graduation, the student must present a minimum grade point average of 2.0 (C) for all work attempted in the Upper Division. Specific grade requirements for the various curricula may be found in the appropriate department office.

Students planning to enter the Graduate School must maintain a 3.0 (B) average in all Upper Division work.

GRADUATION WITH HONORS AND HIGH HONORS

The faculty will consider recommending students for graduation with HONORS or HIGH HONORS on the following bases: (a) honor point average, (b) distributions and quality of subject matter studied, (c) evaluation of the student by the faculty, and (d) other pertinent qualities of the student and his work.

The student will be considered for HONORS upon his earning a minimum 3.2 academic average or for HIGH HONORS upon his earning of a 3.5 academic average. The average will be based on all Upper Division work required for the appropriate degree as listed in the catalogue. Transfer credits will be excluded from the average; but HONORS or HIGH HONORS may be awarded upon a minimum of 72 quarter hour credits taken at the University of Florida.

GRADUATE DEGREES

Architecture—Those who wish to obtain a professional degree in architecture must pursue the two-year graduate program which is a prerequisite for seeking licensing for architectural practice. It permits further study in specialized areas through individual programs of study devised in accord with the students' interests.

I. CURRICULUM IN ARCHITECTURE

Leading to the Degree of Bachelor of Design (Architecture)

Butt, A. E., *Chairman;* Morse, R. H., Adviser

This curriculum is for students who desire to obtain a pre-professional education in architecture. It is the undergraduate preparation for the two-year graduate program for those interested in professional practice, teaching, and similar careers of creative and intellectual activity. For other careers in architecture the course of study leading to the Bachelor of Design is a terminal program.

Students participate in a two-year program of general education in architecture. Also in consultation with departmental counselors the student selects electives which will strengthen and reinforce individual interests and objectives. Elective study permits the student to begin a background for the two-year professional graduate program.

In the graduate program the student is required to work closely with all other graduate students although each pursues one of several optional courses of study. Optional courses of study are architectural design, architectural structures, architectural control systems, architectural history and architectural preservation. For details of the graduate professional program see the Graduate Catalog.

The undergraduate and graduate programs form a curriculum of study accredited by the National Architectural Accrediting Board established by the American Institute of Architects, the National Council of Architectural Registration Boards, and the Association of Collegiate Schools of Architecture.

For Freshman and Sophomore programs required for entry into the pre-professional program consult the Lower Division section of the catalog.

The program of study given below shall be pursued by all students who were freshmen in the Fall of 1970 or subsequent terms.

Students currently enrolled in the five-year program may elect to transfer to the six-year professional degree program in a course of study determined from an evaluation of their records.

After June 1975 the five-year undergraduate professional degree will not be awarded.

The Department reserves the right to retain student work for the purposes of record, exhibition, or instruction.

Third Year	*Credit*
AE 355 Architectural Structures 1	4
AE 365 Environmental Technology 1	4
AE 345 Materials & Methods of Construction 1	4
Elective	4
	16

AE 335 Architectural Design 3	4
AE 375 Survey of Architectural History 1	4
AE 385 Site Analysis	4
Elective	4
	16

AE 356 Architectural Structures 2	4
AE 366 Environmental Technology 2	4
AE 346 Materials & Methods of Construction 2	4
Elective	4
	16

Fourth Year	*Credit*
AE 435 Architectural Design 4	4
AE 475 Survey of Architectural History 2	4
AE 445 Materials & Methods of Construction 3	4
Elective	4
	16

AE 456 Architectural Structures 3	4
AE 442 Working Drawings or Elective*	4
LAE 521 Site Planning	4
Elective	4
	16

AE 436 Architectural Design 5	4
AE 465 Specifications & Estimating	4
AE 476 Survey of Architectural History 3	4
Elective	4
	16

*An elective may be taken in lieu of AE 442 upon submission of evidence of equivalent experience in working drawing development in an architect's office. Suggested elective for those going into the technology area: ISE 420—Engineering Economy; ISE 350—Digital Computer Programming.

II. CURRICULUM IN INTERIOR DESIGN

Leading to the degree of Bachelor of Design

Butt, A. F., *Chairman;* J. MacFarlane, Adviser.

This curriculum is for students who desire to become professional interior designers in the domestic, commercial, and institutional fields, or who desire to engage in the merchandising, design, or manufacture of furniture and accessories.

For Freshman and Sophomore programs of study consult section of catalog entitled Lower Division.

The Department reserves the right to retain student work for the purposes of record, exhibition, or instruction.

Students must begin the fourth year program during the Fall Quarter only.

Third Year	*Credit*	*Fourth Year*	*Credit*
IR 331 Interior Design 1	5	IR 431 Advanced Interior Design 1	8
IR 341 Interior Furnishings 1	4	AE 442 Working Drawings	4
AE 316 Architectural Drawing 1	4	Elective	4
AE 346 Materials & Methods of Construction 2	4		16
	17		
IR 332 Interior Design 2	5	IR 432 Advanced Interior Design 2	8
IR 342 Interior Furnishings 2	4	IR 443 Practice of Interior Design	4
IR 372 History 1	4	Elective	4
Elective	4		16
	17		
IR 333 Interior Design 3	5	IR 443 Advanced Interior Design 3	8
IR 343 Interior Furnishings 3	4	MGT 401 Business Law	5
IR 373 History 2	4	Elective	3
IR 375 Textiles	4		16
	17		

III. CURRICULUM IN LANDSCAPE ARCHITECTURE

Leading to the degree of Bachelor of Landscape Architecture

Butt, A. F., *Chairman;* Herrick H. Smith, Adviser.

This curriculum is designed to train students in the arrangement and conservation of land areas for human use and enjoyment. Graduates are prepared for private practice in the field of landscape architecture and for employment as landscape architects in municipal, state and federal recreation and planning agencies. Also, due to intensive training in site planning and planting design, graduates find ready employment with architectural and engineering offices.

For Freshman and Sophomore programs of study consult section of catalog entitled Lower Division.

The Department reserves the right to retain student work for the purposes of record, exhibition, or instruction.

Third Year	*Credit*
LAE 331 Landscape Architectural Design 1	5
LAE 341 Landscape Construction 1	4
OH 331 Fundamental Ornamental Plant Classification	4
Elective	4
	17

LAE 332 Landscape Architectural Design 2	5
LAE 342 Landscape Construction 2	4
OH 332 Identification of Basic Ornamental Plants	4
AE 385 Site Analysis	4
	17

LAE 333 Landscape Architectural Design 3	5
LAE 353 Planting Design	5
LAE 363 Grounds Maintenance	4
Elective	4
	18

Fourth Year	*Credit*
LAE 431 Advanced Landscape Architectural Design 1	8
LAE 421 Senior Seminar	3
LAE 481 Recreation Planning	4
AY 301 Principles of Agronomy	3
	18

LAE 432 Advanced Landscape Architectural Design 2	8
LAE 442 Professional Administration	5
AE 483 Urban Design	3
	16

LAE 433 Advanced Landscape Architectural Design 3	8
SY 350 Urban Sociology	4
Elective*	4
	16

*Suggested Electives: AE 316, OH 333, OH 362, SLS 330, FY 450, GPY 305, GPY 331, GPY 501, RE 350, ISE 350, ART 357.

IV. CURRICULUM IN BUILDING CONSTRUCTION

Leading to the degree of Bachelor of Building Construction

Johnson, L. A., *Chairman;* Trimmer, J. M. and Williamson, H. D., Advisers, Upper Division; Bristor, J. D. and Holland, H. F., Advisers, Lower Division.

This four-year program is for students who are interested in preparing for professional careers in construction management, techniques, operations, products research, and related areas in the construction industry rather than in architectural and engineering design. A graduate program leading to the degree of Master of Science in Building Construction is also offered, see graduate catalog.

Qualified instructors, all of whom have had years of actual experience in various areas of the construction industry, assure authoritative treatment of all course material.

The construction industry represents America's largest and most important segment of the national economy with an annual volume of more than 90 billion dollars. Economists predict that today's building activity will double in the next 10 years and that during the next 30 to 40 years, (the productive period of today's college student), a second America will be built—the present total space in this country's buildings will be doubled.

The construction industry and its related fields are in dire need of young men and women educated in the arts of communications and interpersonal relations and in areas of construction management, techniques, and operations. This curriculum provides education in all these areas.

Students are especially attracted to construction because of the creative excitement, the challenging and rewarding opportunities offered, and the sense of tangible accomplishments. Opportunities for advancement and increasing responsibilities are unlimited in all areas of the industry, a few of which include land development; home building; public building; industrialized building and systems; commercial, industrial, marine, and heavy construction; under-water and space age facilities; material and equipment distribution, sales, and installations; construction product research, development, sales, and applications.

All candidates for a Bachelor's degree in Building Construction must take part in the senior inspection trip. Details concerning this requirement should be secured by each student from the Chairman of the Department.

The Department includes a chapter of Sigma Lambda Chi, National Honorary Construction Fraternity, and the Student Contractors and Builders Association. This association is an affiliated student chapter of the National Association of Home Builders and also of the Associated General Contractors of America.

For the Freshman and Sophomore program of study, consult the section of the catalog entitled Lower Division.

JUNIOR YEAR

1st Quarter

	Credits
BCN 311 Construction Mechanics 2	4
BCN 312 Construction Surveying and Drawing	5
BCN 313 Construction Techniques 1	5

2nd Quarter

BCN 320 Structures 1	4
BCN 323 Construction Techniques 2	5
MGT 401 Business Law	5

3rd Quarter

BCN 410 Structures 2	4
BCN 333 Construction Techniques 3	5
BCN 413 Quantity Surveying	5
	42

SENIOR YEAR

1st Quarter

	Credits
BCN 314 Environmental Technology 1	4
BCN 412 Construction Management 1	4
BCN 423 Construction Estimating	4
BCN 430 Structures 3	4

2nd Quarter

BCN 324 Environmental Technology 2	4
BCN 422 Construction Management 2	4
BCN 424 History of Construction	4
*Professional-Technical Elective	4

3rd Quarter

BCN 334 Environmental Technology 3	4
BCN 335 Site Development	4
BCN 432 Construction Management 3	4
*Professional-Technical Elective	4
	48

*Professional-Technical Elective, to be taken only in senior year, may consist of any combination of credit courses, approved by the Upper Division Adviser, listed in the offerings of the following: Accounting, Architecture, Building Construction, Economics, Finance & Insurance, Geology, Engineering, Management & Business Law, Marketing, Military Science—300 and 400 level, Real Estate & Urban Land Studies. An elective course of more than 4 credits may be taken under the conditions of the satisfactory or unsatisfactory (S-U) grade option.

V. CURRICULA IN ART

E. E. Grissom, *Chairman*

The Department of Art offers undergraduate majors in the College of Architecture and Fine Arts leading to the degrees of Bachelor of Fine Arts, Bachelor of

Design, and Bachelor of Design in Art Education. Upper Division course requirements in the curricula are given below.

For the freshman and sophomore programs of study, consult the section of the catalog entitled The Lower Division. For further information concerning any of these curricula see the Chairman of the Department of Art.

In addition, the Department of Art offers a major in art in the College of Arts and Sciences leading to the degree of Bachelor of Arts. Requirements for this program are given in the listing of the College of Arts and Sciences.

The curricula in the College of Architecture and Fine Arts are intended for students who plan (1) to enter professional careers in fine arts or design, (2) to teach art in the public schools or in the universities and colleges, or (3) to enter the graduate study.

The major in art in the College of Arts and Sciences should be chosen by those students whose interest is in a liberal education with emphasis upon the visual arts.

1. Curricula in Fine Arts

Leading to the Degree of Bachelor of Fine Arts

The curricula in Fine Arts provide for majors in (a) Fine Arts—creative photography, painting, printmaking and sculpture, (b) the History of Art, and (c) Crafts—ceramics, jewelry and metalwork. Students who plan to enter a program of graduate study in art after receiving the baccalaureate degree are advised to register in one of these curricula. Upon completion of graduate work students entering these fields are qualified for positions in museums and art galleries, as instructors of art on the college or university level, or for independent activity as creative artists.

(a) Major in Fine Arts

JUNIOR YEAR

	Credits
ART 303 Methods and Materials of the Artist	3
ART 309 Criticism of Art	3
ART 350-351 Intermediate Drawing 1 and 2	6
**ART 353-354 Painting 1 and 2	6
ART 355 Printmaking 1	3
ART 357 Sculpture 1	3
History of Art	9
*Electives	16
	49

SENIOR YEAR

	Credits
ART 341 Photography	3
ART 408 Senior Seminar	3
ART 450 Advanced Drawing	6
Advanced Painting, Photography, Printmaking or Sculpture	18
History of Art	6
*Electives	15
	51

*Electives must include a minimum of twelve credits outside the Department of Art.

**The example given above is for a major in painting. If a student were to major in photography, printmaking, sculpture, etc., he would substitute Photography 2 (ART 342), Printmaking 2 (ART 356) or Sculpture 2 (ART 358), etc., for Painting 2 (ART 354).

(b) Major in the History of Art

JUNIOR YEAR

	Credits
ART 303 Methods and Materials of the Artist	3
ART 309 Criticism of Art	3
HY 201-202-203 History of World Civilization	9
PPY 311-312-313 History of Philosophy	9
Foreign Language	9
History of Art	18
	51

SENIOR YEAR

	Credits
ART 408 Senior Seminar	3
PPY 370 Aesthetics	3
Foreign Language	9
History of Art	18
Electives	16
	49

(c) Major in Crafts

JUNIOR YEAR

	Credits
ART 280 Beginning Ceramics	3
ART 303 Methods and Materials of the Artist	3
ART 309 Criticism of Art	3
ART 357 Sculpture 1	3
ART 380-381 Intermediate Ceramics 1 and 2	6
ART 383-384-385 Jewelry and Metalwork, 1, 2, and 3	9
History of Art	9
*Electives	15
	51

SENIOR YEAR

	Credits
ART 341 Photography	3
ART 358 Sculpture 2	3
ART 408 Senior Seminar	3
Advanced Ceramics or Jewelry and Metalwork	18
History of Art	6
*Electives	16
	49

*Electives must include a minimum of twelve credits outside the Department of Art.

2. Curriculum in Advertising Design

Leading to the Degree of Bachelor of Design

The curriculum in Advertising Design is a professional program for students with serious professional intentions. Included in the curriculum are a series of courses in design, drawing, and painting; the history and theory of art; and, in the professional field, lettering, layout, graphic design, advertising design, photography and illustration. Students receiving the Bachelor of Design degree in this curriculum are well qualified for professional careers in advertising design and related fields.

JUNIOR YEAR

	Credits
**ART 260 Lettering	3
ART 303 Methods and Materials of the Artist	3
ART 309 Criticism of Art	3
ART 341 Photography	3
ART 360-361 Layout 1 and 2	6
ART 362 Typography	3
ART 368 Advertising Design	6
ART 350-351 Intermediate Drawing 1 and 2	6
History of Art	6
*Electives	12
	51

SENIOR YEAR

	Credits
ART 353 Painting 1	3
ART 408 Senior Seminar	3
ART 460 Advanced Advertising Design	6
ART 467 Projects in Advertising Design 1	3
ART 468 Projects in Advertising Design 2	6
History of Art	9
*Electives	19
	49

*Electives must include a minimum of twelve credits outside the Department of Art.

**ART 260—should, if possible, be completed in the Sophomore Year.

3. Curriculum in Art Education (College of Architecture and Fine Arts—College of Education).

Leading to the Degree of Bachelor of Design in Art Education

The curriculum in Art Education is designed for students who plan to teach art in the public schools. Students completing this curriculum, which is offered in cooperation with the College of Education, are qualified for certification as teachers of art in the State of Florida.

JUNIOR YEAR

		Credits
EDF	345 Human Growth and Development	5
EDF	300, 320 or 410	5
SCA	353 Artistic Development of the Child	4
SCA	354 Artistic Development of the Adolescent	4
ART	260 Lettering or 360, Layout	3
ART	280 Beginning Ceramics	3
ART	380 Intermediate Ceramics 1	3
ART	357 Sculpture 1	3
*Art Electives		14
General Electives		5
		49

SENIOR YEAR

		Credits
EDE	400 Elementary School Today	5
EDS	400 The Secondary School Today	5
SCA	453 Methods and Materials for Art Education	4
SCA	454 Seminar in Art Education	4
EDE	405 The Practicum; K-12	16
ART	408 Senior Seminar	3
ART	355 Printmaking 1	3
*Art Electives		8
General Electives		3
		51

*Art Electives must include such advanced courses as are necessary to complete state certification requirements and must include a minimum of three closely related studio courses in a single advanced area (fine arts, crafts, advertising design, etc.).

VI. CURRICULA IN MUSIC

Leading to the Degrees Bachelor of Music and Bachelor of Music Education

James P. Hale, Adviser

NOTE: Music majors must be admitted to the music major program by the Department of Music. Prospective majors should see the Department of Music Chairman as early as possible in their college careers.

Requirements for the Degree—To qualify for a degree in music, a student must complete the courses listed below to the satisfaction of the music faculty. The faculty reserves the right to require a minimum grade of "C" in any course required for graduation.

A piano proficiency examination is required of all music majors. The student must take Piano Skills, until he has met this requirement.

1. Curriculum for Applied Instrumental Major.
   Bachelor of Music Degree.

JUNIOR YEAR

Music Performance Area	*Credits*
Applied major in courses above 300	9
Junior Recital is required	
Applied minor	3
Ensemble	6
Courses	
MSC 317, 318, 319, History of Music	12
MSC 303, Form and Analysis	4
MSC 403 or 404, Counterpoint	4
Three courses from CPS 121, 122, 123; CBS 261, 262, 263; CMS 171	9
Elective	4
	51

SENIOR YEAR

Music Performance Area	*Credits*
Applied major in courses above 300	9
Senior Recital is required	
Applied minor	3
Ensemble	6
Courses	
MSC 305, Instrumentation and Arranging	4
MSC 405, Conducting	4
Projects and Problems	5
Electives	20
	51
Total minimum credits	198

2. Curriculum for Applied Voice Major.
Bachelor of Music Degree.

JUNIOR YEAR

Music Performance Area	*Credits*
Applied major, MSC 325A, 325B, 325C	9
Junior Recital is required	
Ensemble	6
Piano (1 year beyond MSC 76) minimum credits	5
Courses	
MSC 317, 318, 319, History of Music	12
Foreign Language	10
Three courses from CPS 121, 122, 123; CBS 261, 262, 263; CMS 171	9
	51

SENIOR YEAR

Music Performance Area	*Credits*
Applied major, MSC 325D, 325E, 325F	9
Senior Recital is required	
Ensemble	6
MSC 471, 472, Language and Diction for Singers	2
Courses	
MSC 303, Form and Analysis	4
MSC 403 or 404, Counterpoint	4
MSC 405, Conducting	4
MSC 363, Projects and Problems	5
Electives	17
	51
Total minimum credits	198

3. Curriculum in Theory and Composition.
Bachelor of Music Degree.

JUNIOR YEAR

Music Performance Area	*Credits*
Applied major, above 300 level	9
Piano (or minor applied)	3
Ensemble	3
Courses	
MSC 317, 318, 319, History of Music	12
MSC 403, 404, Counterpoint	8
Electives	7
Three courses from CPS 121, 122, 123; CBS 261, 262, 263; CMS 171	9
	51

SENIOR YEAR

Music Performance Area	*Credits*
Applied major, above 300 level	9
Piano (or minor applied)	9
Ensemble	3
Courses	
MSC 307, 308, Composition	8
MSC 305, 306, Instrumentation and Arranging	8
MSC 303, Form and Analysis	4
MSC 363, Projects and Problems	5
Elective	5
	51
Total minimum credits	198

4. Curriculum in History and Literature.
Bachelor of Music Degree.

JUNIOR YEAR

Music Performance Area	*Credits*
Applied major, above 300 level	9
Piano (or minor applied)	3
Ensemble	4
Courses	
MSC 317, 318, 319, History of Music	12
Foreign Language	14
Three courses from CPS 121, 122, 123; CBS 261, 262, 263; CMS 171	9
	51

SENIOR YEAR

Music Performance Area	*Credits*
Applied major, above 300 level	9
Piano (or minor applied)	3
Ensemble	3
Courses	
Four courses from MSC 311, 312, 314, 411, 414, 415	16
Foreign Language	4
MSC 303, Form and Analysis	4
Electives	12
	51
Total minimum credits	198

5. Curriculum in Church Music.
Bachelor of Music Degree.

JUNIOR YEAR

Music Performance Area	*Credits*
Applied major, above 300 level	9
Applied minor	3
Ensemble	4
Courses	
MSC 317, 318, 319, History of Music	12
MSC 405, Conducting	4
Foreign Language	10
Three courses from CPS 121, 122, 123; CBS 261, 262, 263; CMS 171	9
	51

SENIOR YEAR

Music Performance Area	*Credits*
Applied major, above 300 level Senior Recital is required	9
Applied minor	3
Ensemble	3
Courses	
MSC 316, Organ Design and Literature	4
MSC 416, Church Music and Hymnody	4
MSC 461, Vocal Music Materials	4
MSC 403 or 404, Counterpoint	4
Electives	20
	51
Total minimum credits	198

NOTE: Electives must include at least two courses in music literature chosen from MSC 311, 312, 314, 411, 414, and 415, and at least one course in religion, RN 361 or 362 or 363.

Ordinarily the church music major will earn 26 credits (four years of study) in organ or voice, with 6 credits (one year) in the other area of organ or voice as the applied minor.

6. Curriculum in Music Education.
   Bachelor of Music Degree.

The purpose of this curriculum is to prepare students to become musicians and music teachers both in private life and in the public schools. It is offered in cooperation with the College of Education and is based on a broad foundation in music. It includes work in theory of music, music literature, music education, applied music, and ensemble.

This is the program recommended for, and which best meets the needs of, the majority of music majors. It provides teaching certification, kindergarten through 12th grade, in Florida and in most other states through the National Council for the Accreditation of Teacher Education.

JUNIOR YEAR

Music Performance Area	*Credits*
Applied major, above 300 level	6
MSC 283, Voice Skills	2
MSC 277, 279, 281, Instrumental Skills	6
Ensemble	3
Courses	
MSC 317, 318, 319, History of Music	12
MSC 367, 369, Music Education	10
EDF 345, Human Growth and Development	5
Three courses from CPS 121, 122, 123; CBS 261, 262, 263; CMS 171	9
	53

SENIOR YEAR

Music Performance Area	*Credits*
MSC 275, Percussion Skills	2
MSC 405, Conducting	4
Courses	
MSC 400 or 461 or 462, Materials and Administration	4
EDF 300 or 320 or 410, Foundations of Education	5
EDE 400, Elementary School Today	5
EDS 400, Secondary School Today	5
Approved Electives in Science and Math	8
Teaching Internship	
EDE 405, The Practicum—Music K-12	16
	49
Total minimum credits	198

The degree Bachelor of Arts in music is offered through the College of Arts and Sciences with the cooperation of the Department of Music. See the College of Arts and Sciences sections of the catalog for that degree.

The College of Arts and Sciences

GENERAL STATEMENT

Culturally and historically the programs of the College of Arts and Sciences represent the core of all higher education. The College grants its graduates the traditional Bachelor of Arts and Bachelor of Science degrees. This College makes its contribution to the work of the world not only through the many facts and skills it imparts but also by providing the student with the fundamental knowledge upon which the professional colleges build.

A major aim of the College is liberal education. To this end it insists on evaluations of ideas and actions according to their impact on society. Intellectual inquiry is emphasized as a preparation for more competent living and the development of human leadership.

SUBJECT-MATTER FIELDS

The subject-matter fields regularly offered to students in the College of Arts and Sciences and the extent of these offerings are indicated in the table below:

Subject	Electives	Major	Masters	Ph.D.
Anthropology	X	X	X	X
Art	X	X	Graduate work offered through College of Architecture and Fine Arts	
Astronomy	X	—	X	X
***Bacteriology	X	X	Graduate work offered through College of Agriculture	
****Biology	—	X	—	—
Botany	X	X	Graduate work offered through College of Agriculture	
Chemistry	X	X	X	X
Chinese	X	—	—	—
Economics	X	X	Graduate work offered through College of Business Administration	
English	X	X	X	X
French	X	X	X	X
Geography	X	X	X	X
Geology	X	X	X	—
German	X	X	X	—
Greek	X	X	—	—
History	X	X	X	X
Italian	X	—	—	—
Journalism	X	Major and Graduate work offered through the College of Journalism and Communications		
Latin	X	X	X	—
Library Science	X	X	—	—
**Mathematics	X	X	X	X
Meteorology	X	—	—	—
*Music	X	X	—	—
Philosophy	X	X	X	—

Subject	Electives	Major	Masters	Ph.D.
Physics	X	X	X	X
Political Science	X	X	X	X
Portuguese	X	—	—	—
Psychology	X	X	X	X
Religion	X	X	—	—
Russian	X	X	—	—
Sociology	X	X	X	X
Spanish	X	X	X	X
Speech	X	X	X	X
Statistics	X	X	X	X
Swahili	X	—	—	—
Zoology	X	X	X	X

*Except for music majors, a maximum of 9 hours of credit in ensemble music may be included in the minimum of 186 hours required for the degree.

**Also see the section below on requirements for the degree Bachelor of Science in Mathematics.

***For undergraduate specialization in bacteriology see the material on BACTERIOLOGY in the section of this Catalog for the College of Agriculture.

****Interdepartmental Major in Biology. Available for those working toward the Teacher Certification only. For Teacher Certification program see College of Education section of the catalog.

UNIVERSITY COLLEGE PROGRAM

University College students who plan to enter the College of Arts and Sciences should consult the arts and sciences material in the University College section of the catalog.

ADMISSION

As a regular undergraduate student: (*3AS, 4AS*): To be eligible for admission to the College of Arts and Sciences, students are required to have earned 96 quarter hours of acceptable college credit, and to have a 2.0 average, in all work attempted.

A student who has completed the work of the University College and has an academic record which does not fully meet these admission requirements but shows such improvement as to provide a reasonable basis for predicting success in a degree program in this College, may register in the University College for an admission probation program of courses arranged for him in the Office of the Dean of Arts and Sciences. If at the end of the probationary period he has met the terms of the probation, he will be admitted to the College of Arts and Sciences. If his work in this trial program is unsatisfactory, his admission will be finally denied.

As a special post-baccalaureate student (*6AS*): A student who has received a baccalaureate degree but who is not seeking admission to the Graduate School may, under certain conditions, be admitted as a special student (6AS). Occasionally such a student may be seeking a second Bachelor's degree, although the College tends to discourage this except in unusual situations. Usually, however, the special student is a student who took a non science program and has now decided he wants to go to medical school. Because of the crowded condition of the College and the shortage of staff, it has been necessary to limit the number of special students. In order to be eligible for consideration, an applicant must have an average of at least 2.5 for his last 2 years of undergraduate work. In addition, he must outline in writing for the Admissions Committee his educational objectives and his reasons for wishing to enter the College as a special student. The Committee considers previous grades, test scores, and any other information available to it, and attempts to determine whether or not the applicant seems likely to attain his objectives. If, in the opinion of the Committee, he is unlikly to do so, the application may be denied regardless of previous grades and test scores.

As a graduate student (*7AS*): The general section of this catalog dealing with admission describes certain minimum requirements for admission of graduate stu-

dents to the University. Additional details for admission are given in the *Graduate School Catalog.*

Students wishing to be admitted to graduate work in any Department of the College of Arts and Sciences must meet these requirements and must also: (1) have earned a 3.0 (B) average in all work attempted in the proposed major field as well as having earned the required 3.0 (B) average for all work done during the Junior and Senior years of the undergraduate program; (2) have made a satisfactory score on the Graduate Record Examination by averaging the aptitude portion of the G.R.E. alone or in conjunction with the advanced subject matter test in the major field; (3) have completed an amount and distribution of work in the proposed graduate major field which is satisfactory to the major department; and (4) have qualities conducive to successful study on a graduate level.

Because of the large number of applicants and a philosophy which emphasizes individual and personal relationship between student and preceptor, many of the departments in the College have set standards for admission appreciably above those of the College as a whole. Most departments accept few if any studnts who have minimum qualifications.

Occasionally a student who is not accepted as a graduate student may be permitted to register for a trial program under a fifth year undergraduate registration. The two types of Trial Programs are outlined in the Graduate Catalog. For students who qualify, Trial Programs are made out by the department of the proposed major.

The College of Arts and Sciences offers the Master of Arts, Master of Science and Doctor of Philosophy degrees through its qualified departments. In addition, the College offers the Master of Arts in Teaching and Master of Science in Teaching for students interested in a program planned for the training of Junior College teachers in academic areas.

PROBATION AND EXCLUSION

A student who does not have a 2.0 average for all work attempted in the University College or for all work attempted or transfered into the College of Arts and Sciences will be placed on a probation program and required to make-up a specified number of grade points each quarter until he has attained the required average. If he fails to meet the terms of his probation, he may be denied further registration in the College. Any student who refuses to take a program which includes courses required for his degree and prescribed by his adviser and/or the Dean, or any student who refuses to take courses which would enable him to make normal progress towards a degree in this College, may be denied registration in the College.

ADVISEMENT

Upon admission to the College of Arts and Sciences, the student should contact the office of the Undergraduate Division of the College, 113 Anderson Hall, for referral to an academic adviser. Unless the student requests a change, he will remain with this adviser so long as he is registered as an undergraduate student in the College. Although he may see the adviser at any time, he will be required to do so at least once each quarter. At that time, the adviser will give the student a registration card and will be available to discuss the student's program for the next quarter and his progress toward the degree. The faculty member's role in this process is only *to give advice. The student assumes the responsibility for fulfilling college and departmental degree requirements.*

Preprofessional Counseling: Like all other undergraduate students, preprofessional students are referred to an academic adviser through the office of the Undergraduate Division of the College, 113 Anderson Hall. However, all premedical and predental students are, in addition, *required to register each quarter* in the Preprofessional Counseling Office, 105 Anderson Hall.

GENERAL REGULATIONS

Student Responsibility: The student must assume full responsibility for registering for the proper courses and for fulfilling all requirements for his degree. He is also responsible for completing all courses for which he is registered.

Courses may be dropped through the offices of the Dean until the end of the fifth week of the quarter without petitioning. After the fifth week courses may be dropped or changed without penalty only through the offices of the Dean of the College (by petitions) and the Registrar.

The student's program of studies is subject to the approval of the Dean.

Seniors must file formal application for a degree in the Office of the Registrar and must pay the graduation fee early in the quarter in which they expect to receive the degree. The official calendar shows the latest date on which this can be done.

Maximum, Minimum and Normal Loads: The normal course load in this College is 15 credit hours, and all students are expected to carry a normal load. Loads which are either lighter or heavier than normal must be justified and approved by the student's academic adviser. Loads in excess of the College maximum of 19 hours or below the University minimum of 12 hours for a full-time student require approval of the Dean as well as the student's adviser.

Credit for Course Work Outside of the College: A. General: At the beginning of this section is a list of subject matter fields in which credit for a degree in Arts and Sciences is granted. The primary objective of this College is to provide its students with a liberal education and it is the feeling of the faculty that the fields listed are in general those which are conducive to a liberal education. However, a student may select for degree credit up to 10 hours of work from other subject matter areas.

B. Special Cases: The minimum total of 186 hours required for the bachelor's degree may include not more than: 24 hours credit in education provided the student follows an approved program and becomes NCATE certified; 9 hours of credit in ensemble music (Does not apply to music majors). However, education credit taken after completion of the first 96 hours of college or university work will reduce correspondingly the number of hours outside the college which can be taken under the 10 hour rule above. In the first 96 hours of course work presented for admission to Arts and Sciences a student may receive credit for his degree for not more than 38 hours of work offered in other upper division colleges.

Registration in Graduate Courses—In accordance with the rules of the Graduate School, except for Ford Foundation 3 year Masters students, undergraduate students may not register in graduate courses (600 level and above) without permission of the Dean. This permission is normally given only to students in their senior year who are carrying not more than 16 hours and have an average of at least 2.8.

Registration beyond normal period for completion of degree—Any student who has completed all of the academic requirements for the Baccalaureate degree but has not obtained the degree will be denied further registration in the College. A student who has completed more than 15 hours beyond the normal minimum requirement for his degree without receiving the degree, must obtain permission of the Dean for further registration.

Student Petitions: If a student feels that the College regulations work a peculiar hardship or injustice in his case, he may petition for waiver of the regulation involved. Information on procedure in submitting such petitions is available in the Office of the Dean.

Other Student Regulations: The University issues a bulletin entitled *Student Handbook* which contains much information of essential importance to any student. For example, the general regulations governing military training and student employment are covered. Each student in the College of Arts and Sciences should be familiar with this material. Copies of the bulletin may be obtained at the Office of the Registrar.

REQUIREMENTS FOR DEGREES

BACHELOR OF ARTS AND BACHELOR OF SCIENCE

The programs which lead to the degrees Bachelor of Arts or Bachelor of Science are alike in all basic requirements.

The degree Bachelor of Arts will be conferred upon those who fulfill the requirements for degrees with majors in one of the fields of Anthropology, Art, Economics, English, French, German, Greek, History, Latin, Library Science, Music, Philosophy, Political Science, Religion, Russian, Sociology, Spanish, and Speech.

The degree Bachelor of Science will be conferred upon those who fulfill the requirements for degrees with majors in one of the fields of Bacteriology, Botany, Chemistry, Geology, Physics, and Zoology.

The degree of Bachelor of Arts or Bachelor of Science will be conferred upon those who fulfill the requirements for the degree with a major in Geography, Mathematics, Psychology or Statistics. A major in one of these subjects will lead to the Bachelor of Arts degree if the majority of subsidiary and elective credits in the student's entire program are earned in the humanities and/or social sciences, and will lead to the Bachelor of Science degree if such subsidiary and elective credits are science credits. The requirements for graduation with either of these degrees are as follows:

A minimum of 186 quarter hours credit (normally 96 in the lower division and 90 while registered in this College) with an overall average of C or better in all work transferred to or completed in the College and an overall average of C in all work attempted at the University of Florida. NOTE: Some credits approved by the Registrar as acceptable may not be applicable toward the minimum degree requirements of this College.

The degree program must include (1) a basic distribution, (2) a departmental major, (3) a language proficiency and (4) elective requirement

1. Basic Distribution Requirement

Normally this work will be completed before admission to the College of Arts and Sciences. The requirement includes:

8 hours credit in Social Sciences
8 hours credit in English
8 hours credit in Humanities
8 hours credit in Physical Sciences
8 hours credit in Biological Sciences

One course in mathematics—No credit towards an Arts and Sciences degree will be given for any course in mathematics which is largely a repetition of high school algebra.

A minimum of one laboratory course in either the physical or biological sciences must be included in the above distribution. The student must earn a grade of "C" or better in each of the courses taken to fulfill the distribution requirement. The following list specifies courses which may be used to make up deficiencies in the distribution requirement.

This list is for the information of students who are actually registering in the College of Arts and Sciences and for their counselors. It is not a recommendation to students in other colleges nor is it intended to satisfy the requirements of any other college.

Social Sciences:	Any course in APY, ES, GPY, HY, PCL, PSY, SY Except: GPY 300; PSY 201, 301, 302, 307, 308, 324, 401, 411; APY 302; SY 340.
Physical Sciences:	Any course in CY, PS, GY, MTY, ATY and GPY 300.
English:	Any course in English. Except EH 302, 303.
Mathematics:	Any course in MS, STA; SY 340 or PSY 411.
Humanities:	Any course in EH, RN, PPY; SCH 220, 221; ART, MSC, (except ensemble) LY 200; FLE literature, culture and civilization.
Biological Sciences:	Any course in ZY, BTY, BCY; APY 302. Acceptable if taken at the University of Florida: PSY 201, 301, 302, 307, 308, 324.
Laboratory requirement:	Any course in a science department that has a regularly scheduled laboratory. Also GPY 300; ATY 141 and PSY 401.

NOTE: Students must have at least one course in a Physical Science Department and one in a Biological Science Department for the minimum requirement. They may use courses from the Departments of Psychology, Anthropology and Geography for the second course or to make up a "D" grade.

2. The Departmental Major

A departmental major consists of a concentration of course work in a specific department. A list of majors available in the college can be found at the beginning of the Arts and Sciences section of this catalog. The number of credit hours required for a major will vary from department to department, but in no case may the number of hours required be fewer than 36 hours or more than 60 hours in the major department. The student should check the major requirements in the section of the catalog which lists the courses offered by his major department. Some departments may require subsidiary courses from subject-matter fields other than the major. No courses in the major in which the grade earned is below "C" will be counted toward the fulfillment of the minimum major requirement. Work in the major taken in the University College or transferred to the University from another institution is included in evaluating the student's record for this requirement. However, all transfer credit in the major must be approved by the major department and any such credit which is not approved as a part of the major will not apply towards the total credit requirement for the degree.

3. Foreign Language Requirement

All candidates for degrees awarded by the College of Arts and Sciences are required to have at least a minimum proficiency in some foreign language. The student may elect to satisfy this requirement either by examination or by successful completion of the final quarter of work in a foreign language offered at the 200 level or higher at the University of Florida. When feasible, students are advised to complete the foreign language requirement before entering the College.

4. Elective Requirement

Of the minimum of 186 quarter hours required for a bachelor's degree in the College of Arts and Sciences, 96 are normally earned before the student is admitted to this College; of the remaining minimum of 90 quarter hours, at least 45 must be earned in courses outside of the student's major department.

5. *Residence Requirement:* The last forty-five hours to be applied toward a degree must be completed in residence in the College of Arts and Sciences. In special cases this requirement may be waived, but in no case may the amount of extension or correspondence work permitted exceed eighteen of the last fifty-four hours required for the degree.

BACHELOR OF SCIENCE IN MATHEMATICS

In addition to the departmental majors described in the section containing the mathematics course listings, a special curriculum is offered leading to the special degree "Bachelor of Science in Mathematics." This curriculum is designed to provide an in-depth education for the student with a high motivation and capability in mathematics and admission to this program is by departmental permission only. The courses are open to qualified non-mathematics majors as well as mathematics majors.

This degree will be awarded with departmental major honors to students completing the program with a 3.0 or better average in mathematics.

The requirements for this degree are:

(1) Grades of "C" or better in each of the following courses:

MS 345-346-347	Introduction to real analysis 1, 2, 3	15 hrs.
MS 445-446-447	Introduction to real analysis 4, 5, 6	9
MS 435-436-437	Introduction to modern algebra 1, 2, 3	9
MS 544-545	Differential Equations	6
MS 551-552-553	Proseminar	12
2 1-yr. electives		18
	Total	69 hrs.

(2) A total of 117 hours must be earned in Upper Division.
(3) The foreign language requirement must be met in German, Russian, or French.
(4) All other requirements for a Bachelor's degree in the College of Arts and Sciences must be satisfied.

ARTS AND SCIENCES HONORS PROGRAMS

Consistent with its view that higher education should result in the development of each student as an intellectual individual, this college gives its students individually tailored degree programs of formal courses. In addition, the College offers a variety of opportunities for independent and seminar honors work to those of its undergraduates who have demonstrated appropriate qualifications.

The Senior Seminar: This seminar is concerned with recent achievements in most areas of knowledge. It is conducted by a committee of four faculty members. Many other professors contribute on a more limited basis. It extends through the four quarters. A candidate for High Honors continues in the Seminar three quarters, preferably consecutive, and earns nine hours, creditable toward the elective requirement. Selection for the Senior Seminar is at the discretion of the Seminar Committee. Seminar members are expected to spend some of their study hours in the Seminar Room. The College Office will receive applications for this seminar from students who 1) will have completed at least one quarter of work in residence in the College of Arts and Sciences before entering the seminar, 2) have earned a grade point average of 3.5 or higher in all of their college work (or have earned the Associate of Arts degree from the University College with High Honors), and 3) are recommended by their major department for admission to the Senior Seminar.

Honors Work in the Major Field: Each department provides an opportunity to take 9 credits of the major in special honors work. The minimum qualification to be selected for major honors work is a 3.0 average in all major work attempted and the completion of at least 22 credits in the major. Applications for selection should be made by consultation with the academic adviser.

DEPARTMENTAL MAJOR HONORS

To qualify for departmental major honors, the student must complete 9 credits of honors work in his major field (see above), complete all work attempted in his major field with at least a 3.0 average, and be recommended for this distinction by his major department. A graduate who qualifies will receive a certificate from the College stating that the baccalaureate degree has been completed with "Honors in _____ (name of major subject), and a note of this distinction will be recorded in the student's college academic record.

BACCALAUREATE WITH HONORS

To receive his degree *With Honors,* the student must qualify for departmental majors honors (see above) and earn a grade point average of 3.2 or higher in the work of the Upper Division.

BACCALAUREATE WITH HIGH HONORS

To receive his degree, *With High Honors,* the student must qualify for his degree with honors (see above), must have completed the "Senior Seminar" and must be recommended for high honors by the Senior Seminar Committee.

PHI BETA KAPPA

Phi Beta Kappa is an honorary scholastic society for outstanding students in Arts and Sciences. Membership is achieved only by invitation of the society and not by application. Twice each year the committee of the local chapter examines the records of seniors who rank in the upper ten percent of the graduating class of the College of Arts and Sciences to determine whom the Society should invite into membership. The deans of other colleges are asked to submit the qualifications along with letters of recommendation of those seniors in their respective colleges who have an outstanding record in Arts and Sciences courses. Those students whose records show proficiency in a diversity of disciplines for example, the

physical, biological and social sciences, mathematics and humanities are given more favorable consideration.

The society also considers for election a selected number of graduate students in the Arts and Sciences who are about to earn the Ph.D. degree that quarter.

SPECIAL PROGRAMS

PRE-PROFESSIONAL TRAINING

The College of Arts and Sciences offers pre-professional training necessary for admission to professional schools of Theology, Medicine, Dentistry, Law, and Library Science. Students interested in preparing for professional training in one of these areas will be referred to an appropriate adviser.

The undergraduate program in speech pathology or audiology is primarily pre-professional. Program requirements: See College of Education section of this catalog.

FORD FOUNDATION THREE YEAR MASTER'S DEGREE PROGRAM

The Ford Foundation Three Year Master's Degree Program is designed for superior students who are interested in undertaking graduate study. For each participant the program will normally begin with the junior year and will continue through the first year of graduate study. Some of the requirements for the Master's Degree may be completed in the form of slight overloads or through independent study during the junior and senior years, thus permitting the Ford Fellows to qualify for the Master's degree in one year after receiving the bachelor's degree. Students interested in this program should consult with Dr. T. A. Nunez, Tigert 235.

TEACHER PREPARATION IN ARTS AND SCIENCES

Students may earn their degrees in the College of Arts and Sciences, and complete requirements for certification as high school teachers in one or more academic subjects by following one of the Arts and Sciences—Education Programs described in the College of Education section of this catalog.

Further information may be obtained in the College of Arts and Sciences Office, 113 Anderson Hall.

AMERICAN AREA STUDIES PROGRAM

Through this area studies program, the College of Arts and Sciences offers an interdisciplinary approach to the study of America's cultural heritage. Each student, working with the adviser, is allowed to construct an individualized pattern of courses suited to his own particular needs and background. It is a flexible arrangement in that the student continues to major in one of the traditional disciplines, but in the choice of electives he directs his attention toward building an American area specialization by taking a number of courses from among those offered in the history, literature, philosophy, politics, economics, geography, religion, arts and sociology of American life, past and present.

Specifically, the student in this program elects 36 credits from among American related courses in the fields of: History, Humanities, Literature, and Social Sciences.

In addition, each student will take an interdisciplinary seminar of 9 credits: HY 454, HY 455, HY 456.

The student who successfully completes this program will receive, in addition to the regular diploma, a certificate in American Area Studies.

If possible the program should be initiated in the University College. All students are referred to Dr. S. S. Conroy, 484 Little Hall, for information and advisement.

LATIN AMERICAN STUDY PROGRAM

The College of Arts and Sciences offers this curriculum as its particular contribution to Latin-American Studies at the University of Florida and to the interest of the State in Latin-American affairs. The program is designed to provide a broad

cultural base for students who plan to do graduate work in the field or who plan careers with Latin-American connections in business or government.

The program is based on a departmental major leading to the degree of Bachelor of Arts. The major may be selected from the following fields: Economics, Geography, History, Political Science, Sociology, Anthropology, and Spanish. In addition, two special requirements exist: (1) The student must take from thirty-six to forty hours of courses with Latin-American emphasis. Courses taken within the major may be counted in fulfillment of the requirement. (2) He must demonstrate a reading and speaking knowledge of Spanish or Portuguese. This requirement may be satisfied either through course work or through special examination.

All students interested in the program, including those enrolled in the University College, should consult with the program adviser, Professor J. W. Freels, 9 Anderson, for assistance in planning their course of study. Upon completion of the above requirements, students will be awarded the College's Certificate in Latin-American Studies.

SOCIAL ADMINISTRATION

This program provides for a basic understanding of cultural factors and fundamental principles of professional social work for more effective community living and for those who plan to enter the field of social work on a bachelor's degree level. Also the program serves as a foundation for those desiring graduate work in this field.

This program provides training for beginning workers in social administration and a foundation for those desiring graduate work in this field. The program is so designed that the student is provided with a pre-professional background without sacrificing the advantages of a liberal education.

The program in social administration leads to the degree of Bachelor of Arts and all requirements for this degree must be met. The students will have a departmental major in sociology, with appropriate subsidiary courses in Economics, History, Political Science, and Psychology. The following courses recommended for students preparing to enter the program include: ES 201-202, HY 202, PCL 201, SY 201, SY 311, SY 312, PSY 201, SCH 201. Students interested in this program should confer with the Department of Sociology, for assistance in planning this program.

INTERNATIONAL AFFAIRS

This program provides a limited amount of professional preparation for careers in international affairs, including the Foreign Service of the Department of State, the United States Information Agency, Central Intelligence Agency, National Security Agency, the United Nations and its specialized agencies, and other international organizations. Training is designed to lead to appointment as Foreign Service Officer, Intelligence Research Specialist, Foreign Affairs Analyst, etc. Admission to the Foreign Service and for some positions in the U.S.I.A. is through the Foreign Service Officer Examination. For information the student should consult the Foreign Service Adviser, Professor F. W. Hoole, 106 Building D.

Students should take at least three years of an appropriate foreign language (6 quarter courses), some courses in Political Science, Economics, History, Geography, English and American Literature. The examination emphasizes the general cultural knowledge of the student as well as his command of social sciences information.

PUBLIC ADMINISTRATION AND GOVERNMENT PLANNING

This program provides an introduction to professional preparation in public administration and government planning for students who plan to terminate formal study with the Bachelor of Arts degree and a broad foundation for those preparing for graduate work in the field. Students who complete the program may secure employment with the Federal Government by passing the Federal Service Entrance Examination, including the management Intern Option, if they desire. These examinations should be taken in the senior year. Administrative positions with state and local government agencies are also available. Those who go on to the Master of Arts degree may qualify for advanced civil service examinations and for positions in the field of federal administrative management or city management.

All requirements for the degree of Bachelor Arts with a departmental major in Political Science must be met. It is strongly urged that while in the University College the student begin work on the foreign language requirement and the required core courses of Political Science 201, 207, and 209. After admission to the College of Arts and Sciences, Statistics 320 should be taken, and major courses taken should include Political Science 411, 512, and 514.

Depending on his field of interest the student may elect from History 245, 246 247; Economics 201, 354, and 535; Real Estate 370; Psychology 201, 306, 503, and 504; and Sociology 201 and 350.

The student should keep in mind the undesirability of excessive specialization. Additional information and help in planning course programs may be had by consulting Dr. Ruth McQuown, 8 Peabody Hall.

ASIAN AREA STUDIES

The College of Arts and Sciences offers to undergraduate students an integrated program in Asian studies. The program provides a broad foundation for those preparing for graduate work and for those who plan a career in government service.

The program is based on a major in one of the following departments: Economics, Geography, History, Political Science, Religion, Foreign Languages. The student must demonstrate a reading knowledge of an Asian language; and his overall programs must include 30 hours of work from the courses listed below. A maximum of fourteen course hours within the major may be used in fulfilling the 30 hour area requirement.

Courses in the program include: ART 323; CH 133, 134, 135, 201, 202, 203; ES 418, 449; FLE 230; GPY 535; HY 381, 382, 485, 486, 581, 582, 583; PCL 511, 522, 526; RN 321, 322, 323, 401.

All students interested in this program, including lower division students, should consult with Dr. R. T. Chang, Peabody 111 or Dr. A. B. Clubok, Peabody 204A.

SOVIET AND EAST EUROPEAN AREA STUDIES

The College of Arts and Sciences offers to undergraduate students an integrated program in Soviet and East European studies. The program provides a broad foundation for those preparing for graduate work in the field and for those who plan a career in government service.

The program is based on a major in one of the following departments: Economics, Geography, History, Philosophy, Political Science, Religion, Foreign Languages. The student must demonstrate a reading knowledge of Russian or an East European language, and this over-all program must include at least 36 hours of work from the courses listed below. A maximum of 14 course hours with the major may be used in fulfilling the 36 hour area requirement.

Courses in the program include: ES 418, 449, 513; FLE 230; GPY 490, 491; HY 330, 331, 332; PCL 410, 505, 506; RN 375; RSN 102, 103, 133, 134, 201, 202, 530; PPY 363.

All students interested in this program, including lower division students, should consult with Dr. Marvin Entner, Peabody 109 or with Dr. James F. Morrison, Room 11A, Anderson Hall.

HISTORY OF SCIENCE

This interdepartmental program provides a nucleus of courses which will introduce the student to the history of science. This program may be taken in conjunction with a major in History, Philosophy, or one of the Sciences. These courses may also be used to meet the requirements for minor work at the Master's level.

The specialized courses included are:

ASC 341	History of the Physical Sciences	3
ASC 542 (ZY 542)	History of the Biological Sciences	3
PPY 522	Philosophy of Science	5
ASC 501 (HY 501)	Ancient and Medieval Science	3
ASC 502 (HY 502)	The Scientific Revolution	3
ASC 503 (HY 503)	Science Since Newton	3
ASC 555	Directed Study in the Backgrounds of Science	3

All students interested in the program, including those enrolled in the University College, should consult with the program advisers, Dr. G. C. Omer, 462 Little Hall, or L. Berner, 108 Flint Hall, for assistance in planning their course of study.

AFRICAN STUDIES PROGRAM

The African Studies Program of the University of Florida, established with financial assistance offered under Title VI of the National Defense Education Act, provides a broad foundation for students preparing for graduate work or for careers in which a knowledge of African affairs is essential. The program is administered by an African Studies Center, designed to facilitate and further interdisciplinary research and collaboration.

To receive a Certificate of African Studies a student must (1) take at least 36 hours of courses with African content (see below); (2) offer a departmental major in Anthropology, Economics, Geography, History, Political Science, or Sociology; (3) elect French, Portuguese or Swahili to satisfy the foreign language requirement.

Specific course requirements are the following: (1) Linguistics: Introduction to Linguistics, FLE 301; Introduction to African Linguistics, FLE 302. (2) Social Science requirements: African History sequence HY 343, 344. Africa: Traditional Cultures APY 443; African Governments, PCL 528; Geography of Africa, GPY 496. (3) Senior seminar: Interdisciplinary Undergraduate African Seminar, ASC 450-451-452. This senior seminar will be offered on a broad social science basis with the participation of staff members from the social sciences and foreign languages.

Further information may be secured from Dr. I. R. Wershow, African Studies Center, University of Florida, Gainesville, Florida.

AFRO-AMERICAN STUDIES PROGRAM

An interdisciplinary program leading to a certificate in Afro-American Studies is offered by the College of Arts and Sciences. The program is designed to furnish students an inclusive knowledge of the historical experience and condition of peoples of African origin in America. Courses in the program are offered by a number of departments including Anthropology, Economics, English, History, Political Science, and Sociology. In order to be awarded the certificate the student must complete at least thirty-six credits from the courses offered, constructing in consultation with the program advisor a pattern of classes which best fit his interests and needs. In addition, the student must complete a departmental major and fulfill the requirements for graduation from the College of Arts and Sciences.

Requirements for the certificate include: (1) one or two courses from the African Studies Program plus HY 343, Africa to 1800, 4 credits; (2) the introductory foundation course, ASC 201, Introduction to Afro-American Studies, 4 credits, normally taken in the Sophomore year; (3) ASC 453, Afro-American Studies Senior Integrative Seminar I, 4 credits, which serves to further identify and explore problems in the Afro-American field; (4) ASC 454, Afro-American Studies Senior Integrative Seminar II, 4 credits, enabling students to work with specialists on Afro-American research problems.

Additional courses in the program include: courses in the African Studies Program; APY 405; EH 345; ES 412; HY 349, 350, 547, 548; MSC 412; PPY 490; PCL 412 (when applicable), 419; PSY 430; RN 430; SY 202, 391, 492, 590.

Interested students are encouraged to contact the program advisor, Professor Selden Henry, 404 College Library, or Professor Stephen Conroy, 484 Little Hall, as soon as possible.

SPECIALIZATION IN THE FINE ARTS

Music: Students interested in majoring in music should consult the faculty adviser, Room 104, Music Building, as soon as possible in their college program.

The student who selects a Major in Music must earn a total of sixty quarter hours in the following courses:

Applied Music in approved courses numbered above 100 ..... 16 hrs.

Theory of Music, MSC 101, 102, 103, 104, 105, 106, 201, 202, 203, 204, 205, 206 ..... 24 hrs.

Survey of Music History, MSC, 318, 319 ..... 8 hrs.

Upon completion of the above courses, the student must select an area of concentration—i.e., Applied Music, Theory of Music or History and Literature, and earn twelve credits in that concentration. (These required twelve credits are in addition to those listed above and must be specifically approved for each student). The student must also register for and participate each term in ensemble music groups.

A piano proficiency examination is required of all music majors. The student must take Piano Skills until he has met this requirement.

A senior student concentrating in the area of Applied Music will present a senior recital. In the areas of Theory and History and Literature, the senior will present a project which demonstrates his competence in his area of specialization.

For graduation with departmental honors in music, the student should apply for honors to the music faculty at the beginning of his junior year. In addition to the grade point average requirement, the student concentrating in the area of Applied Music will present, with the approval of the music faculty, a Senior Honors Recital. This recital is a reflection of work in applied music on the honors level in the upper division. The student in Theory or History and Literature must present an honors project in his specialized area. This project will be prepared in connection with twelve credit hours from Music Theory courses, MSC 303, 304, 305, 306, 307, 308, 403 or 404; or from History and Literature courses, MSC 311, 312, 314, 315, 316, 317, 411, 414, 415, 416; and with the approval of the music faculty.

Art: The student who elects a Major in Art must earn a total of not less than forty-eight quarter hours including the following courses: (1) ART 101-102, ART 103-104, ART 207-208-209, a total of twenty-one hours; (2) a minimum of twelve additional quarter hours in a single field of specialization: Fine Arts; History of Art; Crafts; or, Advertising Design; and (3) ART 408, 3 hours.

Students should consult Professor Eugene E. Grissom in planning a major program.

SPECIALIZATION IN SPEECH PATHOLOGY AND AUDIOLOGY

A pre-professional program for students desiring to work in speech therapy or hearing therapy may be arranged through the College of Arts and Sciences or the College of Education. Program requirements: See College of Education section of this catalog.

SPECIALIZATION IN SANITARY SCIENCE

A program for a Bachelor of Science degree with a major in Chemistry, Biology or Bacteriology may be arranged to include those subjects most important for base-level employment as a Sanitarian. Students are referred to the Chemistry Department for advisement in this program.

COMPUTER AND INFORMATION SCIENCE

Undergraduate students desiring to enter the field of computer and information science should consult with their counselors for modification of their prescribed curricula in order to secure subject material. Particular attention should be called to the course sequence ASC 311, 312, 321 and 322. Also, other courses are available to provide the computer basics needed for each discipline.

For further information, the student should contact Professor R. A. Ramey, Chairman, Computer and Information Science Steering Committee.

CHAIR OF AMERICANISM

Through the generosity of the American Legion, Department of Florida, which has provided a fund of $40,000 for this purpose, supplemented by legislative appropriation, there is maintained a Professorship in the Department of History of the College of Arts and Sciences known as the "Chair of Americanism." This chair was established to present courses and lectures on American ideals, American government, American institutions, and American citizenship.

The Professor of Americanism teaches courses in American History and promotes special programs on American ideals. Although the University requires all freshmen to take a nine credit, three quarter course entitled, "American Institutions," a number of additional courses in American History are offered as electives. The central theme in all American History courses is the struggle of the people of the United States for a more perfect democracy.

Part of the income from the endowment of the Chair of Americanism is used to bring outstanding Americans to the University of Florida for a series of addresses on the theme of American traditions. Many of the lectures are published and distributed as a part of the Americanism program of the University.

PLACEMENT SERVICE

The facilities of the University Placement Service are available to students in the College of Arts and Sciences. Students wishing to make use of this service should report directly to Mr. M. E. Mayberry, University Placement Officer, Reitz Union.

The College of Business Administration

GENERAL STATEMENT

The College of Business Administration of the University of Florida was organized in 1926-27. The divisions of the College are: Department of Accounting; Department of Economics; Department of Finance and Insurance; Department of Management and Business Law; Department of Marketing; Department of Real Estate and Urban Land Studies; and Bureau of Economics and Business Research.

The College of Business Administration has broad objectives: to provide the foundation for competent, responsible participation in business, the professions and government; to stimulate interest in social, economic and civic responsibilities; to develop competence in making business decisions and in evaluating policy; to offer fields of specialization in business or economics, and, especially, to encourage intellectual inquiry.

Specific arts and detailed information are necessary parts of the curriculum, but the guiding principle of this College is to stress broad fundamentals in terms of the above objectives, and to prepare the student to develop subsequent specialization. To this end, every curriculum of the College is constructed around a core of courses in economics and the major functional areas of business.

The College also has other functions. It contributes to knowledge through the research activities of its faculty and students. Graduate programs are provided for advanced students and prospective teachers in business administration and economics. The College participates in programs of adult education both on and off campus. It recognizes its responsibilities to students in other colleges of the University by giving them an opportunity to complement their education with courses in economics and business administration.

The College maintains a computer facility for instructional and research purposes. Advanced students also have access to the University Computing Center, which contains high-capacity equipment.

SCHOLARSHIPS AND ASSISTANTSHIPS

Scholarships are available for students in Business Administration. Full information about these scholarships may be obtained from the Director of Student Financial Aid, University of Florida, Gainesville, Florida.

Graduate assistantship and fellowships are available for students working toward the degrees of Master of Business Administration, Master of Arts, and Doctor of Philosophy. Information about these assistantships may be obtained from the Director of Graduate Studies, College of Business Administration, University of Florida, Gainesville, Florida.

BUREAU OF ECONOMIC AND BUSINESS RESEARCH

There is established in the College of Business Administration a Bureau of Economic and Business Research. One of the major purposes of this Bureau is to carry out research undertakings designed to contribute to economic and business knowledge, with primary emphasis upon the economy of Florida and the Southeast. A second major aim is the functional participation of the faculty members of the Bureau staff in the curriculum for graduate training offered by the College of Business Administration and in this way to provide opportunity for graduate students to engage in specific research projects. From time to time work is undertaken which permits a similar opportunity for undergraduate students.

The Bureau publishes the results of its research undertakings as these are completed. It also issues a monthly publication, *Economic Leaflets,* the monthly *Business and Economic Dimensions,* and special reports.

The Bureau is a member of the Associated University Bureaus of Business and Economic Research.

MEMBERSHIP IN NATIONAL AND REGIONAL ASSOCIATIONS

The College of Business Administration is a member of the American Association of Collegiate Schools of Business, the Southern Economic Association, the Southern Business Administrative Association and the National Retail Merchants' Association. Its baccalaureate and MBA programs are accredited by the American Association of Collegiate Schools of Business.

BETA GAMMA SIGMA

Election to this national honorary society is based on scholarship and character. It fills the place in education for business that the society of Phi Beta Kappa holds in the field of classical education. Duly elected members have the right to wear the *insigne* of the society—the Beta Gamma Sigma gold key. For further information apply to the Office of the Dean.

PROFESSIONAL ORGANIZATION AND CLUBS

There are five professional fraternities who elect members from students in the College of Business Administration. These are Alpha Kappa Psi and Delta Sigma Pi in commerce and business, Beta Alpha Psi in accounting, Omicron Delta Epsilon, in economics, and Phi Chi Theta for business women. Several clubs also give students with specialized interest an opportunity to participate in their activities: The Real Estate Club, The Insurance Society, AIESEC-US, and a student chapter of The Propellor Club. A student chapter of the Society for Advancement of Management elects its memberships both from this College and the College of Engineering.

WOMEN IN BUSINESS

Rapidly increasing opportunities exist for women graduates in many business fields. Illustrative areas are marketing, banking, accounting, economic analysis, insurance, real estate, personnel administration, statistics and investments. Supplemental concentration in secretarial courses may be included in one of the regular degree programs of women preparing for responsible positions as executive secretaries.

ADMISSION REQUIREMENTS

A. Students will be admitted to the College of Business Administration who have earned 96 quarter hours of acceptable college credit with a 2.0 average at the University of Florida and any other institutions attended and fulfilled the following requirements:

1. Completion of the requirements of the University College, including: CSS 111-112-113, CEH 131-132-133, CPS 121-122, CBS 261-262, CPS 123 *or* CBS 263, CLC 141-142-143, and CHN 251-252-253, with a passing grade in each; and
2. Completion of a *minimum* of 20 quarter credits (or equivalent) from the following foundation courses: ATG 201 and 203 or 204, ES 203-204-205, MS 102, MS 204, STA 320, with a passing grade in each (except that the balance of these requirements must be completed as soon as practicable after admission to the upper division); and
3. Completion of EH 303 and SCH 201 (or equivalents) with a passing grade in each.

B. Transfer Students—The College of Business Administration welcomes Junior

College graduates and students from other colleges who wish to transfer to the College of Business Administration after completing two years of study. It is anticipated that an ever increasing proportion of students will come to the University after completing a college parallel program in Junior College. Application for admission to the College is especially appropriate at this level since two years of college study is a prerequisite for admission to the upper division degree program.

The College of Business Administration is organized as a professional school within the University. A program of education for professional leadership must be based on a foundation of comprehensive general education; consequently, most of this basic work must be taken prior to admission to the College. It should be further noted that approximately one half of the work leading to the bachelor's degree in business is required from academic areas outside of business administration.

The following conditions will serve as a guide in expediting admission to the College (in compliance with Section "A" above) and in preparing for a professional career in business leadership.

1. Junior College students should complete the program of general education as required by the Junior College. Certification to this effect normally will be accepted as fulfilling the general education requirements of the University of Florida. Students attending a four year college, who wish to transfer after two years, should follow a program in general education similar to that required at the University.

2. Prerequisite courses in business subjects during the first two years should be limited to such courses as are *required* at this university for freshmen and sophomores. These include: a one-year sequence in accounting, a one-year sequence in economics, a course in statistics, and two courses (with specific coverage) in mathematics. Transfer credit will be allowed for these courses, provided grades of "C" or better have been earned. Students should *not* take during the first two years courses which are offered at the University only at the upper division level (see paragraph 4 below).

3. Any remaining electives after fulfilling (a) the general education requirements of the junior college and (b) the prerequisite business courses listed above should be taken in such areas as mathematics, natural science, social science, and humanities.

4. A maximum of six quarter credits may be allowed for courses taken during the first two years which are available only as third and fourth year professional courses in the College of Business Administration. Any credit granted for such work will be in the form of undistributed elective credit without reference to specific courses taken, but in no case may such courses be in the student's major field.

C. Provisional Admission—Students who do not meet precisely the admission requirements as shown in Sections A and B above may be granted provisional admission. The terms of provisional admission are the following:

1. The student must have earned a 2.0 overall grade point average on all previous collegiate work attempted; and

2. The dean of the College of Business Administration will specify which foundation courses (from those listed in paragraph A-2 above) the student must complete during his first academic quarter in the upper division (and during the second academic quarter of the student's enrollment, if an additional term under provisional admission is necessary for him to complete the foundation courses); and

3. The student will be fully admitted to the College of Business Administration (that is, the "provisional" status will be removed) upon the student's completion of the foundation courses specified under paragraph C-2 above, *provided that the student earns a grade of "C" or better on each course so specified while he is enrolled under the provisional admission program;* and

4. The student will be *excluded* from further enrollment in the College of Business Administration *if he earns a grade of less than "C"* in any foundation courses specified under paragraph C-2 above.

GENERAL REGULATIONS

STUDENT RESPONSIBILITY: The student must assume full responsibility for registering for the proper courses and for fulfilling all requirements for his degree. He is also responsible for completing all courses for which he is registered.

Courses may be dropped through the offices of the Dean until the official calendar deadline for dropping without petitioning. After the deadline for dropping, courses may be dropped or changed without penalty only through the office of the Dean of the College (by petitions) and the Registrar.

Seniors must file formal application for a degree in the Office of the Registrar and must pay the graduation fee early in the quarter in which they expect to receive the degree. The official calendar shows the latest date on which this can be done.

MINIMUM AND NORMAL LOADS: The normal course load in the College of Business Administration is 16 credit hours. A student may be permitted to register for additional hours if in the opinion of his academic advisor and the Dean, his academic record justifies this. Twelve credit hours is the minimum load for a full-time student in the University.

RESIDENCE: The last 45 quarter hours to be applied toward a degree must be completed in residence in the College of Business Administration. In special cases this requirement may be waived if the student has a 2.0 average or better, and his petition to take non-resident work has been approved in advance by the faculty of the College. In any case, no student may take more than nine quarter credit hours by extension or correspondence among the 90 quarter credits of upper-division work required for the baccalaureate degree; and such work must have prior approval for each individual student by the Petitions Committee of the College. However, courses to be included in the major field may not be taken by extension, by correspondence, or at another university for transfer.

SATISFACTORY-UNSATISFACTORY GRADE OPTION: An undergraduate student in the College of Business Administration may take on the S-U basis only those courses which will be counted as free electives in fulfilling the requirements for his degree.

PROBATION AND SUSPENSION: Students will be excluded from further registration in the College of Business Administration if they fall below a 2.0 GPA for each of three consecutive quarters. A student who accumulates a deficit of more than 8 honor points in two consecutive quarters in each of which he earns less than a 2.0 GPA will be excluded from further registration. Students will still have the right to petition the committee of the college on student admission and petitions in cases of extreme personal hardship. Exclusion under such circumstances from the College of Business Administration does not prohibit the student from enrolling in other programs or colleges at the University of Florida if he meets the prerequisites of that college.

UNDERGRADUATE DEGREES AND CURRICULA

The College of Business Administration offers the Bachelor of Science in Business Administration. To secure the BSBA degree students must complete one of the programs of course groupings in the curriculum in Business Administration. It also offers a specialized program leading to the Bachelor of Advanced Accountancy degree.

GRADUATION WITH HONORS

To graduate *With Honors,* a student must make at least a 3.2 average on all course work accepted as Upper Division credit *and* all course work (except as noted below) attempted while registered in the Upper Division. To graduate *With High Honors,* a student must make at least a 3.6 average on all work accepted as Upper Division credit *and* all course work (except as noted below) attempted while registered in the Upper Division. In calculating requirements for graduating *With Honors*

or *With High Honors,* the following policies are followed: the student must have completed at the University of Florida at least 60 quarter hours for Upper Division credit toward a degree in Business Administration; transfer credits and S-U grade credits will be excluded; and credits for Lower Division courses taken while registered in the Upper Division will be excluded.

ADVANCED ACCOUNTANCY DEGREE

Upon completion of 45 quarter credits of specified advanced business subjects beyond the undergraduate level with an overall grade average of 2.0 (C), students will be awarded the professional accountancy degree AAB, Bachelor of Advanced Accountancy.

The purpose of this fifth year program is to offer specialized accounting training at an advanced level. The courses, while professionally oriented, are taught with a broad philosophical approach which is concerned not only with a thorough understanding of accounting principles and practices but also an appreciation of their interrelation with principles of other fields of business. Its objective is to provide the student with a depth of educational background both in accounting and other business subjects which will encourage him to continue career development in preparation for future leadership in the profession.

ADMISSION REQUIREMENTS:

Admission with be granted to graduates from a college or university with a grade point average of 2.5 (C+) or better and with the equivalent of a major in accounting. Ordinarily, a graduate will have had the equivalent of an accounting major with the completion of from 36 to 45 quarter credits of accounting subjects. No entrance examination is required.

No practical business experience is required for admission to the program but students having such a background will find that it enhances their professional study. Voluntary internship programs of three or four months are available and will add much to the professional development of the student.

CURRICULUM IN ADVANCED ACCOUNTANCY:

Course requirements of 45 quarter credits must include at least 22 quarter credits of advanced accounting subjects to be selected from the 500 level accounting courses. At least 20 quarter credits of advanced business courses also are required. These are to be chosen to supplement the student's undergraduate work in business subjects related to the study of accounting.

Advanced business courses may be elected with the approval of the student's adviser from courses such as the following:

BS	540	Computer Based Business Management
ES	469	Analysis and Forecasting of General Business Fluctuations.
ES	531	Central Government Finance
ES	535	State and Local Finance
ES	543	Foreign Exchange and International Financial Institutions.
ES	572	Economics of the Labor Market
FI	422	Investments
FI	462	Group Insurance and Pension Plans.
FI	528	Corporation Finance
FI	586	Estates, Trusts and Insurance
MGT	460	Collective Bargaining
MGT	470	Managerial Operations Analysis 1
MGT	570	Production Management Problems
MGT	571	Managerial Operations Analysis 2
MKG	362	Marketing Channels
MKG	531	Marketing Principles and Institutions
RE	595	Industrial and Commercial Real Estate Principles and Problems.

FLORIDA ACCOUNTANCY REQUIREMENT:

Completion of the 22 quarter credits of advanced accounting and 14 quarter credits of other advanced business subjects with a grade of 3.0 (B) will be

accepted by the Florida State Board of Accountancy to fulfill the one year experience requirement for the insurance of the CPA certificate.

GRADUATE DEGREES AND ADMISSION TO GRADUATE WORK

Courses are offered in the College of Business Administration leading to the degree of Master of Business Administration, Master of Arts, and Doctor of Philosophy. For requirements for these degrees consult the *Graduate School Catalog* for the conditions for admission to the Graduate School. Students who do not meet the requirements for unqualified admission to the Graduate School as there stated may apply for the planning of a trial program. If so accepted by the college the student will be registered as a fifth year student and will be given a program of about 15 quarter hours involving advanced undergraduate courses and including not more than six quarter hours of graduate work. Upon completion of this program with an average grade of "B" and a satisfactory achievement in the Graduate Record Examination, the student will be considered for unqualified admission to the Graduate School. Up to 12 hours of the trial program may be credited to his graduate record. The trial program will not be continued beyond the original planned period.

CURRICULUM IN BUSINESS ADMINISTRATION

The upper division curriculum in Business Administration requires 90 quarter credits (97 in the Accounting major). The program centers around a core which is required of all students. In addition, each student is required to select one of the nine major fields as an area of concentration. The pattern of the Upper Division requirements is as follows:

UPPER DIVISION CORE REQUIREMENTS

Course		*Credits*
ES	301 National Income Determination and Policy	3
ES	302 Prices and Markets	3
ES	321/FI 321 Money and Banking	3
ES	361 Economics Statistics	4
ES	431 Public Finance	3
FI	326 Business Finance	5
FI	360 (Risk and Insurance) *or*	
	RE 350 (Real Estate Fundamentals)	4*
MGT	310 Principles of Management	4
MGT	340 Introduction to Computer Programming	1
MGT	401 (Business Law 1) *or*	
	ES 455 (Government and Business)	5**
MKG	331 Principles of Marketing	4
MS	211 Basic Mathematics for the Social Sciences	4
PSY	201 (General Psychology) *or*	
	SY 201 (Principles of Sociology) *or*	
	APY 200 (Cultural Anthropology) *or*	
	MGT 355 (Human Relations in Administration)	4
	Total Core Requirements	47

*RE 350 required for students majoring in Real Estate and Urban Land Studies.
**MGT 401 required for students majoring in Banking and Finance.

OTHER UPPER DIVISION REQUIREMENTS

In addition to the upper division core just described, each student must follow the curricular pattern indicated below:

Major Field	
Required courses are listed under the appropriate "major" headings, beginning in the next section. Eighteen credits (25 for Accounting) are the minimum requirement.	18-25
Business Administration Electives	
Must be selected from courses offered within the College of Business Administration, except that a maximum of two courses may be either required (by the department specifying a major field) or chosen within the major field.	15
Free Electives	
Electives may be within or outside the College of Business Administration, but must be *outside* the major field. Maximum of 9 credits in Advanced Military Science may be counted toward upper division credit.	10-11*
Total	43-51

*BS 101 and MS 101, or their equivalents, are not acceptable for upper division credit in the College of Business Administration.

I. ACCOUNTING

This curriculum is designed to provide background in the basic elements of accounting and to provide general preparation in the three main areas of accounting: public, industrial, and governmental.

Courses	*Credits*
ATG 301-302 Intermediate Accounting	10
ATG 305 Industrial Accounting	4
ATG 401 Managerial Accounting	4
ATG 405 Auditing and Internal Control	4
ATG 407 Income Tax Accounting	3
ATG 408 Advanced Federal Tax Accounting	3
Accounting Electives	4-6
Total	40-42

Accounting electives may be selected from: ATG 501, ATG 504, ATG 505, ATG 506, ATG 507, ATG 508, ATG 509, ATG 517, BS 540.

II. BANKING AND FINANCE

This curriculum is designed for those students who plan to go into commercial or investment banking, into other types of financial institutions, or into financial administration.

Courses	*Credits*
FI 420 Management of Bank Funds	5
FI 422 Investments	4
FI 524 Investment Analysis	5
FI 528 Corporation Finance	5
ES 521 Central Banking and Monetary Policy	5
Total[1]	24

[1]The student also is required to take MGT 402 within the "Business Administration Electives" category, and is advised to select the remaining electives from among the following courses: ES 351, ES 354, ES 455.

III. ECONOMICS

This curriculum is designed to provide students with a basic core of courses in Economics, while, at the same time, enabling them to select their electives from among a variety of courses adapted to their needs and interests.

Four to *six* of the following courses or higher numbered courses in the same area, (minimum 20 credits) to be selected on the basis of the student's interest in consultation with his advisor:

Courses	*Credits*
ES 341 International Economics	5
ES 351 Transportation Economics	5
ES 372 Labor Problems	5
ES 410 Development of Modern Western Economy	5
ES 418 Economic Development	3
ES 449 Comparative Economic Systems	4
ES 521 Central Banking and Monetary Policy	5
ES 531 Central Government Finance	5
ES 572 Economics of the Labor Market	5
Total	20-25

IV. FOREIGN TRADE AND TRANSPORTATION

This curriculum is designed to provide the student with the alternatives of an overall view of international trade in its geographic, financial, social and political aspects—leading especially toward employment in exporting and importing; or a general understanding of the economic and certain practical aspects of the public service or closely regulated industries—leading toward research or employment in transport or public utility industries.

Four to *six* of the following courses (minimum 20 credits) to be selected on the basis of the student's interest in consultation with his advisor:

Courses	*Credits*
ES 341 International Economics	5
ES 345 Industry and Trade of Latin American	3
ES 351 Transportation Economics	5
ES 354 Public Utility Economics	3
ES 418 Economic Development	3
ES 444 International Economic Relations	4
ES 543 Foreign Exchange and International Financial Institutions	3
ES 545 Financial Institutions and Fiscal Policies of Selected Latin American Countries	3
ES 547 Contemporary Economic Problems in Sub-Sahara Africa	3
Total	20-23

V. INSURANCE

This curriculum is designed to prepare students for a career in the field of insurance. It is so formulated that the student may give primary emphasis either to life insurance or to property insurance by grouping his course selections appropriately.

The student is required to select *any four* of the following courses:

Courses	*Credits*
FI 360 Risk and Insurance[1]	4
FI 363 Life Insurance and Retirement Plan Mathematics	4
FI 365 Property and Liability Insurance I	5
FI 366 Property and Liability Insurance II	5
FI 462 Group Insurance and Pension Plans	4
FI 487 Risk Management	5
FI 584 Legal Aspects of Insurance	3
FI 586 Estates, Trusts and Insurance	4
Total[1]	18-24

[1]If the student selects FI 360 as the option under the upper division core requirements then he may select a *maximum* of 20 credits from the above list of courses (including within the "Business Administration Electives" category). If the student selects the RE 350 option in the core, then he may select a *maximum* of 24 credits from the above list (including the elective category).

VI. MANAGEMENT

This curriculum is designed for students interested in overall management problems, industrial management, industrial relations or personnel management. By selection of appropriate courses, a student may obtain a solid basis for quantitative analysis of business.

Courses	*Credits*
MGT 410 Principles of Organization	4
MGT 450 Problems in Personnel Management	4
MGT 470 Managerial Operations Analysis 1	4
and *one* course from *each* of the following groups:	
(a) MGT 460 Collective Bargaining	4
MGT 571 Managerial Operations Analysis 2	4
(b) MGT 480 Business Policies	4
MGT 481 Management Philosophy and Practice	4
MGT 572 Managerial Operations Analysis 3	4
(c) MGT 430 International Management	4
or any course not selected in (a) or (b) above	4
Total	24

VII. MARKETING

This curriculum is designed to prepare students for careers in the distributive industries, for market research activities, and for graduate work in marketing.

Courses	*Credits*
MKG 352 Marketing Communications	4
MKG 362 Marketing Channels	4
MKG 471 Marketing Research	4
MKG 431 Marketing Management	3
and *any three* of the following courses:	
MKG 421 International Marketing	3
MKG 441 Sales Management	3
MKG 451 Advertising Management	3
MKG 461 Retail Management	3
MKG 481 Credit and Collections	3
MKG 491 Physical Distribution Management	3
MKG 493 Field Work in Marketing	3
Total	24

VIII. QUANTITATIVE METHODS

This curriculum is designed primarily to prepare students for professional work either in government or in private business. The emphasis is directed to giving the student a foundation in the use of quantitative methods in business. Students who complete the curriculum should be able to qualify for the rank of junior statistician.

Courses	*Credits*
STA 520 Methods of Statistics 1	3
STA 521 Methods of Statistics 2	3
STA 522 Methods of Statistics 3	3
MKG 471 Marketing Research	4
and *any two* of the following courses:	
ES 469 Analysis and Forecasting of General Business Fluctuations	3
ES 561 Econometrics	5
MGT 470 Managerial Operations Analysis 1	4
MGT 571 Managerial Operations Analysis 2	4
Total	20-22

IX. REAL ESTATE AND URBAN LAND STUDIES

This curriculum is designed to prepare students to enter a general real estate business, or any one of its special branches such as appraising, finance, property management, and brokerage.

Courses	*Credits*
RE 360 Real Estate Brokerage and Management	3
RE 370 Urban Land Utilization	3
RE 390 Property Valuation	4
RE 450 Real Estate Law	4
RE 480 Real Estate Finance	3
RE 490 Real Estate Appraising	4
and *any two* of the following courses:	
RE 460 Real Estate Investment Principles and Practices	3
RE 470 Urban Growth and Regional Planning	3
RE 595 Industrial and Commercial Real Estate Principles and Problems	3
Total	28

College of Education

GENERAL STATEMENT

The College of Education, a professional college, has as its purpose the preparation of qualified personnel for positions in research, leadership, and service in education.

The College has programs leading to the preparation and certification of teachers in elementary education, secondary education, special education, and junior college teaching. Programs in guidance and counseling, school administration, and college teaching are available for study at the graduate levels. Undergraduate students interested in these areas will usually complete their bachelor's degree in one of the teaching fields found on the following pages.

Classroom teaching is only one of the many careers available to graduates from the College of Education. School administrators, supervisors, counselors, librarians, school social workers, school psychologists, attendance workers, speech therapists, and reading clinicians are among the many careers found in education. Other career opportunities for those having degrees in education are in the areas of development and distribution of educational materials, educational television, personnel work, counseling, foreign service, peace corps, as educational specialists and training officers in industry, and in educational research.

The University of Florida teacher education programs are designed to assist students with developing three broad areas of competence; (1) *general preparation* consisting of a background of liberal education; (2) the *professional sequence* consisting of work in psychological and social foundations of education, the school program, and internship or practicum, and (3) the *teaching field* or specialization in the area of subject matter to be taught.

The College of Education is fully accredited by the National Council for Accreditation of Teacher Education. Graduates from approved programs in teacher education are granted certification to teach in twenty-eight states as a recognition of this accreditation.

ADMISSION REQUIREMENTS

I. *Admission to the College of Education*

A. From University College

University College students should apply for admission to the College of Education during the quarter in which they are completing 96 hours of work. Applications should be filed in both the Registrar's Office and the Undergraduate Studies Office, Room 124, Norman Hall. Because of the increasing number of applications and because of limitations in staff and facilities, the Committee on Admissions of the College of Education limits the number of admissions to a prescribed quota. To be considered for admission to the College, students will be required to:

1. Complete one of the basic programs outlined in the University College section of the catalog under Education, to include the general preparation requirements. University College students with transferred credit from other institutions will be required to take comprehensive courses according to the University College regulations.
2. Applicants presenting the best overall credentials in terms of grade point average and other predictive indices are given first priority. It is expected that students will have maintained a "C" average or better at each institution attended. When quotas are filled, no additional students can be accepted.
3. Satisfy the speech requirement.
4. Meet minimum standards of physical and mental health.
5. Have the approval of the Committee on Admissions of the College of Education. The Committee will review the application of each candidate with

respect to qualities considered to be essential for effective teaching. The student is expected to speak and to write the English language effectively, and to meet minimum standards of physical and mental health.

B. From other upper division colleges

University of Florida students desiring to transfer from an upper division college to the College of Education must file applications with both the Registrar's Office and the Undergraduate Studies Office, Room 124, Norman Hall. To be considered for admission applicants will be expected to meet the requirements for admission outlined above.

C. By transfer from other institutions

Students transferring to the University are admitted by the University Registrar. Admission to the University does not guarantee admission to this College. The Committee on Admissions of the College of Education determines the students that will be accepted. Quotas have been established to match the number of applicants to the resources and facilities available. Those students that are admitted are expected to meet the requirements of the teaching field into which they are accepted. Grades of less than "C" are not acceptable for transfer credit. Transfer students are expected to:

1. Complete a personal data sheet for permanent records in the College of Education.
2. Meet general preparation requirements. In addition, junior college graduates are expected to have completed the general education requirements of the junior college.
3. Applicants presenting the best overall credentials in terms of grade point average and other predictive indices are given first priority. It is expected that students will have maintained a "C" average or better at each institution attended. When quotas are filled, no additional students can be accepted.
4. Satisfy the speech requirement.
5. Meet minimum standards of physical and mental health.
6. Have the approval of the Committee on Admissions of the College of Education. The Committee will review the application of each candidate with respect to qualities considered to be essential for effective teaching. The student is expected to speak and to write the English language effectively, and to meet minimum standards of physical and mental health.

II. *Admission to the Advanced Professional Sequence*

Although a university student may have enrolled in EDF 345, a student who proposes to enter a teacher education program, whether through the College of Education or one of the cooperating colleges, must be admitted to the Advanced Professional Sequence in Education prior to enrollment in the major curriculum course. For elementary students this is Elementary Education Block 1 or 2; for Early Childhood students this is Early Childhood Education Block 1 or 2; for K-12 students it is EDE 400 and EDS 400; and for secondary students it is EDS 400.

Admission to the Advanced Professional Sequence requires:

1. A special application submitted to the Undergraduate Studies Office, Room 124, Norman Hall, no later than one month prior to the proposed registration for the courses indicated above. Admission to the College of Education is not to be interpreted as automatic admission to the Advanced Sequence.
2. Enrollment in an upper division college.
3. Completion of the general education requirements specified above.
4. Speech screening requirement satisfied.
5. A "C" average, or better, in all residence work at the University of Florida.
6. A "C" average, or better, in specific professional courses and in the area of specialization. Secondary education majors in either the College of Education or Arts and Sciences should note that no grade less than "C" may be counted in the professional education courses or in their field of specialization.

III. *Admission to Student Teaching in Any Teacher Education Program*

Assignments to student teaching for each quarter are made by the Undergraduate Studies Office in the College of Education. Students in the College of

Education are assigned a quarter for student teaching when they are admitted to the College. Students in other colleges should apply for a student teaching quarter as early in their junior year as possible. Assignments are made on the basis of a quota which is usually filled at least one year in advance.

Prior to acceptance for student teaching in a teacher education program, a student must have fulfilled the following requirements:

1. Be enrolled in an upper division college.
2. Have satisfied the speech requirement.
3. Have at least a "C" average in all course work at the University of Florida, the area of specialization courses, and professional education courses.
4. Have been admitted to the Advanced Professional Sequence and have completed the following work:
   (a) *Elementary*—EDF 345; MSC 260, and 390; PHA 361 and 373; EH 491;
   Elementary Education Blocks 1 and 2.
   (b) *Early Childhood*—EDF 345; MSC 260, and 390; PHA 361 and 373; EH 491;
   Early Childhood Education Blocks 1 and 2.
   (c) *Teaching Fields K-12*—EDF 345; EDS 400; EDE 400; at least two-thirds of the course work in the teaching area in which student teaching is to be done and the following courses in the area of specialization:
   Art: EDE 332; SCA 453 and 353 or 354.
   Music: MSC 367, 368, 369; 460, 461 or 462.
   Special Education: EDP 300; PSY 312; SCH 340; EDP 500, 501, 503, 504; Elementary Education Blocks 1 and 2.
   Physical Education: PHA 373, 473.
   (d) *Secondary*—At least 24 hours in education, including EDF 345, EDS 400, 403, and a methods course in the area of specialization, and at least two-thirds of the course work in the teaching area in which student teaching is to be done.
   (e) *Vocational and Technical*—The following courses in the area of specialization and professional education:
   Business Education: EDV 441 or 442, and 540; EDS 400 and 403.
   Vocational Agriculture: EDV 302, 303, and 421; EDS 400.

Students must make special application to the Director of Student Teaching, Room 146, Norman Hall. Applications must be received no later than October 1 for the Winter Quarter, January 10 for the Spring Quarter, and April 1 for the Fall Quarter.

Students have the responsibility for making arrangements to live in the community where student teaching is to be done and to assume living expenses of $100 to $125 in addition to regular on-campus expenses.

ACADEMIC ADVISORY SERVICES

To assist students in their educational and vocational planning the College of Education maintains an Advisory Panel composed of faculty members representing the various teaching fields. In addition to the Advisory Panel other advisory facilities in the College of Education include the Undergraduate Studies Office, Graduate Studies Office and the Placement Service in the Reitz Union.

GENERAL REGULATIONS

PLANNED PROGRAMS

Before the end of the first term of enrollment in the College of Education, the student should plan a program for the remainder of his work required for his degree. All planned programs must have the approval of the student's counselor and the Coordinator of Undergraduate Programs in Education.

Each student is responsible for registering for the proper courses and fulfilling all requirements for his degree. Courses can be dropped or changed without penalty *only* upon approval of his counselor, the Undergraduate Studies Office, and the Registrar.

LOADS

Sixteen quarter hours is considered a normal load. A student may be permitted to register for additional hours if, in the opinion of his counselor, the quality of his record justifies this. Twenty quarter hours is the maximum load and twelve quarter hours is the minimum load for a full-time student in the University. At the time of registration, a student, with the approval of his counselor, may register for less than twelve quarter hours if the conditions warrant this. If during the term a student finds it necessary to drop courses, and thereby reduce his load below twelve hours, he must have the approval of his counselor and the Coord.nator of the Undergraduate Programs.

DEADLINES

Graduating seniors must file an application for a degree in the Office of the Registrar and must pay the graduation fee early in the quarter in which he expects to receive the degree. The University calendar shows the latest date on which this can be done.

Students applying to take course work in the Advanced Sequence (EDS 400, EDE 400, Elementary Education Block 1 or 2, and Early Childhood Education Block 1 or 2) must file an application in the Undergraduate Studies Office 30 days prior to registration in these courses. Student teaching applications are available from the Director of Student Teaching, Room 146, Norman Hall and are due October 1 for Winter student teaching, January 10 for Spring student teaching, and April 1 for Fall student teaching.

RESIDENCE

The last 45 quarter hours to be applied toward a degree must be completed in residence in the College of Education. In special cases this requirement may be waived by petition when a student has completed most of his previous work in upper division of the College of Education.

CORRESPONDENCE CREDIT

No part of the required sequence in a teacher preparation program can be taken by correspondence, home study, or extension unless such courses have been planned with the student's upper division counselor and approved by the Undergraduate Studies Office. Graduating seniors taking correspondence or extension work must complete such work at least two weeks prior to the scheduled meeting of the College Faculty voting on candidates for degrees. In addition to these requirements University regulations pertaining to correspondence and extension work apply to College of Education students.

PETITIONS

If a student feels that the College regulations cause a peculiar hardship or injustice in his case, he may petition for a waiver of the particular regulation. The student should contact his advisor or the Undergraduate Studies Office regarding procedure.

STUDENT HANDBOOK

The University publishes a bulletin entitled *Student Handbook* which contains information and regulations important to all students. Each student should become familiar with this publication which may be obtained from the Dean of Student Affairs.

DEGREES AND CURRICULA

The degrees Bachelor of Arts in Education and Bachelor of Science in Education are offered in the College of Education. The Bachelor of Science in Education Degree is granted to students whose first area of specialization is in science, mathematics, agricultural education, or business education; other curricula lead to the Bachelor of Arts in Education Degree. For either degree the student is required to complete at least 188 quarter credits with a general average of "C" or better in all residence work. The last 45 quarter credits must be taken while in residence in the College of Education. The student must also complete one of the approved programs available through the college.

HONORS

To graduate from the College of Education with honors or high honors, the student will be required to earn on all college work an academic average of 3.2 for honors and an average of 3.5 for high honors. He must have earned at least 90 credits, with the appropriate average, at the University of Florida. Kappa Delta Pi (men and women) and Pi Lambda Theta (women) are honor societies in education. Membership is by invitation.

SCHOLARSHIP AND LOANS

General Scholarships for Preparation of Teachers are sources of funds for prospective teachers. The A. R. Mead Scholarship Fund and Mary Bradshaw Wood Memorial Fund are available to students in the College of Education. Loan funds available to students in the College of Education include the Leon Henderson Memorial Loan Fund, Kappa Delta Pi Loan Fund, Kate Wofford Memorial Loan Fund, Aleyne Clayton Haines Loan Fund, and John Haynes Moorman Memorial Loan Fund. Information on the scholarship and loan funds may be obtained from the College of Education Graduate or Undergraduate Studies Offices. Information regarding other forms of financial aid available to undergraduates may be obtained from the Office of Student Financial Aid.

TEACHER CERTIFICATE

Applications for Florida teacher certification are available in the Undergraduate Studies Office, 124 Norman Hall.

GENERAL PREPARATION

Seventy-two (72) quarter hours of credits in the area of general preparation are required. University College students must have earned a grade of "C" or above in 54 of the 72 credits. Grades of less than "C" are not accepted for transfer and such credit is not applied toward meeting the general preparation requirements.

The minimum requirements in general preparation are:

GROUP A:		
Social Sciences:	CSS 111-112-113	9 credits
Communication:	CEH 131-132-133	9 credits
Humanities:	CHN 251-252-253	12 credits
GROUP B:		
Effective Thinking:	CLC 141-142-143	6 credits
Physical Sciences:	CPS 121-122-123 and	
Biological Sciences:	CBS 261-262-263*	15 credits
Mathematics:	CMS 171	4 credits
GROUP C:		
Electives in general preparation		17 credits

* Five of the six comprehensive science courses or appropriate substitutes are required.

University College students making substitutions and using transfer credit from other institutions will be required to take comprehensive courses according to University College regulations. Students transferring into the upper division of the College of Education as juniors and seniors are expected to have completed comparable comprehensive courses or to have taken appropriate substitutes.

PROFESSIONAL EDUCATION

Minimum requirements in professional education for all teacher education programs (with the exeception of Agriculture) include courses in psychological and social foundations of education, the school program, and an internship or practicum. Students receiving degrees from the College of Education must have a total of 42-45

quarter credits in professional education for the Bachelor of Arts in Education and Bachelor of Science in Education degrees. Students in Arts and Sciences following a joint program in the College of Education will complete a minimum of 39-40 quarter credit hours in professional education.

The specific course requirements are as follows:

All Programs	*Credits*
EDF 345 Human Growth and Development	5
EDF 300 or EDF 320 or EDF 410 or EDF 431	5
In addition,	
Elementary programs include	
Elementary Education Block 1 EDE 300, 331, 370, 375	16
Elementary Education Block 2 EDE 301, 320, 350, 360	16
Elementary Education Block 3 EDE 405	16
Elementary Education Block 4 EDE 302, 500	8
Early Childhood education programs include	
Early Childhood Education Block 1 EDE 303, 331, 370, 375	16
Early Childhood Education Block 2 EDE 304, 320, 350, 360	16
Early Childhood Education Block 3 EDE 405	16
Early Childhood Education Block 4 EDE 305, 500	8
Kindergarten through twelfth grade programs include	
EDE 400 and EDS 400	10
EDE 405 (Art and Music programs)	16
or	
EDS 405 (Library Science)	16
or	
EDP 300 and EDS 414 (Speech Therapy)	8
or	
EDS 405 (Physical Education)	16
EDP 405 (Mental Retardation)	16
Secondary programs include	
EDS 400 and EDS 403	9
An appropriate methods course	3-5
EDS 405 or EDV 405	16
Elective in Education	3-5

AGRICULTURAL AND EXTENSION EDUCATION

The curriculum in Agricultural and Extension Education is a joint program of the College of Agriculture and the College of Education. It is designed to offer the student a combination of courses in technical agriculture and in professional education which will meet requirements for future employment and advanced study in the field of agricultural and extension education. Students majoring in this department will be counseled by the department chairman or his appointee to be sure that the courses in their program meet the requirements.

Students registering in this curriculum will take the program of study recommended in the University College for Agricultural and Extension Education.

All students enrolling in this program will need to satisfy the College of Agriculture core requirements. In addition, it will be necessary to take courses in a minimum of five different departments within the College of Agriculture, as well as courses in professional education from the College of Education.

The student planning to qualify to teach in the public schools will complete a minimum of 46 quarter hours from the following list of professional courses. Those courses indicated by an asterisk (*) are required for a major in Agricultural Education.

A program for preparation in Agricultural Extension will be designed by the student's advisor.

EDV 302*	Principles of Vocational Education	4
EDV 303*	Methods in Vocational Education	4
EDV 420*	Program Planning in Vocational Education	4
EDV 421*	Special Methods in Teaching Agriculture	4
EDV 423*	Lab Practices in Teaching Agriculture	4
EDV 405*	Student Teaching in Vocational, Technical, and Adult Education	16
EDF 345*	Human Growth and Development	5
EDS 400*	The Secondary School Today	5
EDX 301	Agricultural Leadership	4
EDX 407	Agricultural Youth Programs	4
EDX 430	Individual Work in Agricultural and Extension Education	1-8

The following courses in technical agriculture will be required of majors in Agricultural Education.**

MCA 303	Agricultural Mechanics 1	4
MCA 407	Agricultural Mechanics 2	5
AS 301	Principles of Agricultural Economics	5
AL 309	General Animal Sciences	4
PLS 201	Fundamentals of Crop Production	4
SLS 330	General Soils	5
BTY 370	Organic and Biological Chemistry	5
EY 301	Principles of Entomology	4
Electives in Agriculture		21

**Substitutions within the technical agriculture and professional education course requirements must be approved by the department chairman.

ART EDUCATION

Florida teachers are certified to teach art in kindergarten through the twelfth grade. The College of Education and College of Architecture and Fine Arts have a joint program leading to Florida certification in art education. Students may enroll in either the College of Architecture and Fine Arts or the College of Education. The internship in art education is administered through the Department of Elementary Education.

Students should complete ART 101-02—Beginning Design, ART 103-104—Beginning Drawing and Painting, ART 205-206—Intermediate Drawing and Painting while in University College.

JUNIOR YEAR

Course	Credits
EDF 345 Human Growth and Development	5
EDF 300 History of Education in the U.S.	
or	
EDF 320 Social Foundations of Education	
or	
EDF 410 Philosophy of Education	5
SCA 353 Artistic Development of the Child	4
SCA 354 Artistic Development of the Adolescent	4
ART 207-208-209 Introduction to the Principles and History of Art	9
ART 260 Lettering	
or	
ART 360 Layout	3
ART 280 Beginning Ceramics	3
ART 357 Sculpture 1	3
ART Electives	9
	45

SENIOR YEAR

Course	Credits
EDE 405 Student Teaching in Elementary School	16
*EDS 400 Secondary School Today	5
*EDE 400 The Elementary School Today	5
SCA 453 Methods and Materials for Art Education	4
SCA 454 Seminar in Art Education	4
SCA (craft) Elective	4
ART 408 Senior Seminar	3
ART 355 Printmaking 1	3
**ART Electives	6
	50

*EDS 400 and EDE 400 are to be taken concurrently.

**Electives in ART must include such advanced courses as are necessary to satisfy state certification requirements and must include a minimum of three closely related studio courses in a single advanced area (Fine arts, crafts, advertising design, etc.).

BUSINESS EDUCATION

(Broad Field)

While registered in the University College, students should complete as many of the following courses as possible: EDV 140, 242, Introductory and Advanced Typewriting; EDV 243, 245, Introductory Shorthand, and Shorthand Dictation; ATG 201-202-203, Elementary Accounting; ES 201-202 or ES 203-204-205, Basic Economics. Any of these courses not completed in the University College must be taken in the Upper Division. Students with competence in typewriting and/or shorthand may be exempted from taking certain courses in those areas. Approved electives may be substituted for exempted courses. A total of 65 quarter hours including exempted courses in the teaching field is required. No required course in which the grade is below "C" may be counted in this program.

JUNIOR YEAR

Course	Credits
EDV 344 Shorthand Dictation and Transcription	5
EDV 346 Office Machines Techniques	4
FI 322 Financial Institutions	5
EDF 345 Human Growth and Development	5
MGT 401 Business Law	5
EDF 300 History of Education in the United States	5
or	
EDF 320 Social Foundations of Education	
or	
EDF 410 Philosophy of Education	
or	
EDF 431 Comparative Education	
EH 303 Business Communications	4
Electives in Teaching Field	6
Electives	6
	45

SENIOR YEAR

Course		*Credits*
EDS 400	The Secondary School Today	5
EDS 403	Secondary School Curriculum and Organization	4
EDV 540	Principles of Business Education	4
EDV 441	Methods and Materials for Teaching Office Education Subjects	4
	or	
EDV 442	Methods and Materials for Teaching Bookkeeping and Basic Business Subjects	
EDV 405	Student Teaching in Vocational, Technical, and Adult Education	16
MGT 402	Business Law	4
Electives in Teaching Field		4-7
Electives		3-6
		47

BUSINESS EDUCATION

While registered in the University College, students should complete: ES 201-202 or ES 203-204-205, Basic Economics, and ATG 201-202-203, Elementary Accounting. In addition, at least nine quarter hours should be completed from the following: EH 303, Business Communications; EDV 140-242, Introductory and Advanced Typewriting; PCL 201-202, American Federal Government or American State and Local Government. A total of 65 quarter hours in the teaching field is required. No required course in which the grade is below "C" may be counted in this program.

JUNIOR YEAR

Course		*Credits*
FI 322	Financial Institutions	5
EDF 345	Human Growth and Development	5
EDF 300	History of Education in the United States	5
	or	
EDF 320	Social Foundations of Education	
	or	
EDF 410	Philosophy of Education	
	or	
EDF 431	Comparative Education	
MGT 401	Business Law	5
FI 360	Principles of Insurance	5
EDV 346	Office Machines Techniques	4
Electives in Teaching Field		9-10
Electives		8
		46-47

SENIOR YEAR

Course		*Credits*
EDS 400	The Secondary School Today	5
EDS 403	Secondary School Curriculum and Organization	4
EDV 540	Principles of Business Education	4
EDV 442	Methods and Materials for Teaching Bookkeeping and Basic Business Subjects	4
EDV 405	Student Teaching in Vocational, Technical, and Adult Education	16
MGT 402	Business Law	4
Electives in Teaching Field		5
Electives		4
		46

ELEMENTARY AND EARLY CHILDHOOD EDUCATION

Prior to the admission of students to the Advanced Professional Sequence in Elementary and Early Childhood Education programs, they must have completed 96 quarter hours in University College or Junior College, be admitted to the Upper Division, and have completed EDF 345. At this time students should plan with a counselor from the College of Education for other required courses and electives. The Undergraduate Studies Office, Room 124, Norman Hall, will refer students to counselors during registration period and at other times.

ELEMENTARY EDUCATION

All students in Elementary Education are required to include 15 quarter hours in their programs in an area of concentration in one of the following fields:

Social Sciences	Mathematics
Language Arts	Fine Arts
Science	Foreign Language

The area of concentration may be diversified within a field or it may be in a specific subject included in one of the fields.

Check for prerequisites for all courses.

		Credits
EDF 345	Human Growth and Development	5
MSC 390	Music for the Elementary Child	5
PHA 373	Teaching Physical Education in the Elementary School	3
PHA 361	Elementary School Health Program	4
EH 491	Children's Literature	4
EDE 300	Children and Learning—Elementary, 1.	4
EDE 301	Children and Learning—Elementary, 2.	4
EDE 302	Children and Learning—Elementary, 3.	4
EDE 320	Social Studies in Elementary School, 1.	4
EDE 331	Art in Elementary School, 1.	4
EDE 350	Math in Elementary School	4
EDE 360	Science in Elementary School, 1.	4
EDE 370	Language Arts in Elementary School	4
EDE 375	Reading in Elementary School	4
EDE 405	Student Teaching in Elementary School	4 to 16
EDE 500	Seminar in Elementary Education, 1.	4
EDF 300	History of Education in the U. S.	
	or	
EDF 320	Social Foundations of Education	
	or	
EDF 410	Philosophy of Education	5
For students in Elementary Education		
	Electives in general or professional education selected with an advisor	8 to 17

The quarter of admission to the College of Education, the student should request the appointment of an advisor in Elementary Education through the Office of Undergraduate Studies in Education. The student and this advisor will plan together the remainder of the student's program. Students transferring from another institution should report immediately to the Undergraduate Studies Office for the assignment of an advisor.

EARLY CHILDHOOD EDUCATION

All students in Early Childhood Education are required to include 15 quarter hours in their programs in an area of concentration in one of the following fields:

Social Sciences	Mathematics
Language Arts	Fine Arts
Science	Foreign Language

The area of concentration may be diversified within a field or it may be in a specific subject included in one of the fields.

Check for prerequisites for all courses.

		Credits
EDF 345	Human Growth and Development	5
MSC 390	Music for the Elementary Child	5
PHA 373	Teaching Physical Education in the Elementary School	3
PHA 361	Elementary School Health Program	4
EH 491	Children's Literature	4
EDE 303	Children and Learning—Early Childhood, 1.	4
EDE 304	Children and Learning—Early Childhood, 2.	4
EDE 305	Children and Learning—Early Childhood, 3.	4
EDE 320	Social Studies in Elementary School, 1.	4
EDE 331	Art in Elementary School, 1.	4
EDE 350	Math in Elementary School	4
EDE 360	Science in Elementary School, 1.	4
EDE 370	Language Arts in Elementary School	4
EDE 375	Reading in Elementary School	4
EDE 405	Student Teaching in Elementary School	4 to 16
EDF 300	History of Education in the U. S.	
	or	
EDF 320	Social Foundations of Education	
	or	
EDF 410	Philosophy of Education	5
For students in Early Childhood Education		
	Electives in general or professional education selected with advice of counselor	8 to 17

The quarter of admission to the College of Education, the student should request the appointment of an advisor in Early Childhood Education through the office of Undergraduate Studies in Education. The student and this advisor will plan together the student's program. Students transferring from another institution should report immediately to the Undergraduate Studies Office for the assignment of an advisor.

ENGLISH LANGUAGE ARTS

This program leads to certification in English, Speech, and if the student chooses, Journalism. The student may choose an English or a Speech emphasis. Eight hours of Journalism course work will add Journalism to the professional certificate. No course in which the grade earned is below "C" may be counted in this program.

English emphasis: Required are a minimum of 39 hours in English and 24 to 30 hours of Speech, depending on the choice of courses.

Speech emphasis: Required are a minimum of 36 to 44 hours of Speech, depending on the choice of courses, and 31 quarter hours of English.

REQUIRED COURSES:

English	English Emphasis	English Minor
*English Literature—Survey EH 221, 222	8	8
**American Literature EH 272, 272, 371, 372, 471, 472, 473, 474	8	8
Shakespeare EH 431, 432	4	4
***Period Courses EH 435 or 436, 441 or 442, 451 or 452, 461 or 462, EH 421	8	–
English Language Study EH 304, 305, 401, 402	8	8
****Advanced Composition EH 301, 330, 391	3	3
Totals	39	31

*In exceptional cases, one or both of the survey courses may be waived if the counselor deems the student's background to be adequate but the total number of hours in English may not be lowered.

**One of these courses must be in contemporary American literature. Arts and Sciences majors must choose both courses from among the 400 level courses; Education majors are urged to do so.

***In exceptional cases other EH courses may be substituted for the period courses with the counselor's approval.

****JM 201 may be used by Education majors, but not by Arts and Sciences majors, to satisfy the advanced composition requirement, but the total number of hours in English may not be lowered.

Speech	Speech Emphasis	Speech Minor
SCH 201	4	4
SCH 224 and 225 or SCH 324, 325, and 329	8 to 12	8 to 12
SCH 301, 305	4	4
SCH 285 or 340	4 to 5	4 to 5
SCH 305, 324, 325, 329, 340, 495	4 to 5	4 to 5
SCH 307, 224, 225, 324, 325, 329, 301, 285	4 to 5	—
SCH 307, 303, 329, 424, 425, 495	4 to 5	—
SCH 439	4	—
	36 to 44	24 to 30
Journalism		
JM 201 (May be used to satisfy advanced composition requirements)	3	3
JM 515	5	5
	8	8

ENGLISH SPECIALIZATION

This program leads to certification in the single subject of English at the secondary level. Basic requirements include a *minimum* of 39 quarter hours of English and 8 quarter hours of Speech above the basic general education requirements. Additionally, 16 quarter hours of electives to complement the major in English are required. The electives may include additional English course work. No course, either required or approved elective, in which the grade earned is below "C" may be counted in this program.

REQUIRED COURSES:

	Credits
*English Literature—Survey EH 221, EH 222	8
**American Literature EH 271, 272, 371, 372, 471, 472, 473, 474	8
Shakespeare EH 431, 432	4
***Period Courses EH 435 or 436, 441 or 442, 451 or 452, 461 or 462, 421	8
English Language Study EH 304, 305, 401, 402	8
****Advanced Composition EH 301, 330, 391	3
	39

*In exceptional cases, one or both of the survey courses may be waived if the counselor deems the student's background to be adequate, but 39 hours of English are still required.

**One of these courses must be in contemporary American literature. Arts and Sciences majors must choose both courses from among the 400 level courses; Education majors are urged to do so.

***In exceptional cases, other EH courses may be substituted for the period courses with the counselor's approval.

****JM 201 may be used by Education majors, but not by Arts and Science majors, to satisfy the advanced composition requirement, but 39 hours of English are still required.

Speech	
SCH 201	4
SCH—Elective	4
(Normally SCH 224 is the most appropriate choice and should be scheduled unless there is a definite reason for selecting another course.)	
Approved electives: Not more than two courses in foreign language may be used to satisfy this requirement.	16

ENGLISH - HISTORY

Whether the emphasis be on English or history, a course in American government (PCL 201), a course in another social science (e.g., CSS 111-112), and a course in the fundamentals of speech (SCH 201) are also required. In addition, one course in methods of teaching English and one course in teaching history are required. No course in which the grade earned is below "C" may be counted in this program. This is a joint program between the College of Arts and Sciences and the College of Education.

REQUIRED COURSES:

English	English Emphasis	English Minor
*Survey of English literature EH 221, 222, 223	8	8
Shakespeare EH 431, 432	4	4
**Period courses EH 434 or 435, EH 441 or 442, EH 451 or 452, EH 461 or 462, or EH 421	8	0
***American literature EH 271, 272, 273, EH 371, 372, EH 471, 472, 473, 474, 475	8	8

English language study		
EH 304, 305, 401, 402	8	8
****Advanced composition		
EH 301, EH 330	3	3
History	History Emphasis	History Minor
HY 201, 202	8	0
HY 245, 246	8	8
HY 335, 336	8	8
History Electives	12	8
Speech 201	4	4
Political Science 201	4	4

*In exceptional cases, one or both of the survey courses may be waived if the counselor deems the student's background to be adequate but the total number of hours in English may not be lowered.

**In exceptional cases other EH courses may be substituted for the period courses with the counselor's approval.

***One of these courses must be in contemporary American literature. Arts and Sciences majors must choose both courses from among the 400 level courses; Education majors are urged to do so.

****JM 201 may be used by Education majors, but not by Arts and Sciences majors, to satisfy the advanced composition requirement, but the total number of hours in English may not be lowered.

ENGLISH - RELIGION

This is a joint program with the College of Arts and Sciences for certification for secondary school teaching in English and Religion. Students may enroll in either the College of Education or the College of Arts and Sciences. No course in which the grade earned is below "C" may be counted in this program.

ENGLISH MAJOR:

Same as courses required in English Specialization program.

RELIGION MINOR:

Courses totaling 24 hours in Religion, encompassing work in (a) World Religions; (b) Bible; (c) History of Religion in the West; and (d) Religion in America. Typically this would be fulfilled by taking: (a) RN 321-322 (b) RN 341, 343, 344; (c) RN 351, 353; (d) RN 357, 358, 362, 363. Depending on the student's total academic program, other RN courses may be substituted with approval of the student's advisor.

FOREIGN LANGUAGE

This is a joint program with the College of Arts and Sciences. Students may enroll in either the College of Education or the College of Arts and Sciences.

Preparation in a single modern foreign language consists of 36 quarter hours above the second year college level (divided about equally between language and literature courses), plus FLE 301 or FLE 351, making a total of 40 quarter hours.

Preparation in Latin consists of 36 quarter hours above the first year college level plus FLE 301 or FLE 351, making a total of 40 quarter hours.

Students who wish certification in a second foreign language must meet the state requirement of 27 quarter hours in that language.

LIBRARY SCIENCE

This program is required of all persons preparing to secure library and audio-visual services certification at the University of Florida, and is available through the

College of Education or College of Arts and Sciences. If the student wishes to specialize in library and audio-visual service, he must include at least 24 hours in a single or academic field in his elective program. If the student wishes to specialize in library and audio-visual services in the elementary school, he should enter the College of Education and plan his electives with an elementary counselor. No course in which the grade earned is below "C" may be counted in this program.

INSTRUCTIONAL MATERIALS SPECIALIZATION	*Credits*
ED 418—Audio-Visual Materials	4
ED 419—Production of Audio-Visual Materials	4
LY 301—Library Materials	4
LY 402—Library Materials for Children	4
LY 403—Library Materials for Youth	4
LY 411—Library Administration II	4
LY 412—Library Administration III	4
LY 415—Reference Materials	5
LY 425—Cataloging	5
	38

MATHEMATICS

This is a joint program with the College of Arts and Sciences, Students may enroll in either the College of Education or the College of Arts and Sciences. No course in which the grade earned is below "C" may be counted in this program.

REQUIRED COURSES:

	Credits
MS 301, 302, and 303	15
MS 320 and 321	6
MS 325 and 326, or 431 and 432	6

ELECTIVE COURSES:

STA 440, MS 324, 400, 401, 405, and any other mathematics courses chosen with the advice of counselor	13
	40

MUSIC EDUCATION

The College of Education and the College of Architecture and Fine Arts offer a joint program leading to certification in music education for teaching in kindergarten through twelfth grade. Students may enroll either in the College of Education or the College of Architecture and Fine Arts. The internship in music education is administered through the Department of Elementary Education.

Students should complete MSC 101, 102, 103, 104, 105, 106, 201, 202, 203, 204, 205, 206—Theory of Music. Six credits in ensemble, and credits in applied music above the 100 level while in the University College.

Piano Skills MSC 71-76 must be taken each quarter until piano proficiency examination is passed.

JUNIOR YEAR

Music Performance Area	*Credits*
Applied major, above 300 level	6
MSC 283, Voice Skills	2
MSC 277, 279, 281, Instrumental Skills	6
Ensemble	3
Courses	
MSC 317, 318, 319, History of Music	12
MSC 367, 369, Music Education	10
EDF 345, Human Growth and Development	5
Three courses from CPS 121, 122, 123; CBS 261, 262, 263; CMS 171	9
	53

SENIOR YEAR

	Credits
Music Performance Area	
MSC 275, Percussion Skills	2
MSC 405, Conducting	4
Courses	
MSC 400 or 461 or 462, Materials and Administration	4
EDF 300 or 320 or 410, Foundations of Education	5
EDE 400, Elementary School Today	5
EDS 400, Secondary School Today	5
Approved Electives in Science and Math	8
Teaching Internship	
EDE 405, The Practicum—Music K-12	16
	49
Total minimum credits	198

PHYSICAL EDUCATION

The College of Education and the College of Physical Education and Health offer joint programs to prepare men and women physical education teachers. While enrolled in the University College all students should complete the following courses:

MEN: PHA 100, 101, 126, 201, 202, 203, 205, 207, 224, 225, 261, 266

WOMEN: PHA 111, 113, 114, 126, 210, 217, 220, 224, 225, 231, 232, 261

Course *JUNIOR YEAR – MEN AND WOMEN*	*Credits*
PHA 345 – Management of Recreation Centers	3
PHA 365 – Applied Anatomy	5
PHA 366 – Applied Physiology	5
PHA 371 – Foundations of Physical Education	3
PHA 373 – Physical Education in the Elementary School	3
PHA 375 – Adapted Physical Education	2
EDF 320 – Social Foundations of Education	5
EDF 345 – Human Growth and Development	5
	31

JUNIOR YEAR—MEN	*Credits*
PHA 204 – Baseball	2
PHA 231 – Folk and Social Dance	3
Electives – Second Teaching Field	14
	19

JUNIOR YEAR—WOMEN	*Credits*
PHA 266 – First Aid and Medical Self-Help	3
PHA 312 – Basketball for Women	2
PHA 313 – Officiating for Women	2
PHA 332 – Dance Composition	2
Electives – Second Teaching Field	10
	19

Course *SENIOR YEAR – MEN AND WOMEN*	*Credits*
PHA 471 – Administration of Physical Education and Athletics	5
PHA 473 – Physical Education in the Secondary School	5
EDE 400 – The Elementary School Today	5
EDS 400 – The Secondary School Today	5
EDS 405 – Student Teaching	16
	32

SENIOR YEAR—MEN	*Credits*
Electives – Second Teaching Field	15
	15

SENIOR YEAR—WOMEN	*Credits*
PHA 331 – Teaching Folk and Social Dance	2
Electives – Second Teaching Field	13
	15

SCIENCE EDUCATION PROGRAMS

BIOLOGY

The biology specialization leads to certification to teach biology at the high school level. Students may enroll in either the College of Education or the College of Arts and Sciences. No course in which the grade earned is below "C" may be counted in the program.

	Credits
Mathematics:	
MS 301	5
Biology:	
*BTY 181, 182 and ZY 201 or **ZY 201, 202 and BTY 203	13
BTY 310 or ZY 574***	5
BTY 342 and ZY 308	8
BTY 501 or ZY 505	5
AY 362, 363 or ZY 325	5
BCY 300 or BCY 302	5
Chemistry:	
****CY 201, 202, 203, 204 or CY 211, 212, 213	12
BTY 370 or CY 362, 363	5
Physics:	
PS 120 or ***PS 211, 212, 213, 221, 222 and 223	6 to 12
Total	69 to 75

Recommended Electives:
ZY 321, 306, 307; EY 300; BCH 402, 403, 404; GY 201, 202

*Transfer students with a year of Biology should not take BTY 181.
**ZY 201 and CY 202 or 211 are prerequisites for ZY 202.
***Zoology students are expected to take ZY 574 and the physics sequence which is a prerequisite to ZY 574.
****CY 201 does not count in total credits required in this program.

CHEMISTRY

The chemistry specialization leads to the certification to teach chemistry at the high school level. Students may enroll in either the College of Education or the College of Arts and Sciences. No course in which the grade earned is below "C" may be counted in this program.

Course	*Credits*
Mathematics:	
MS 301, 302	10
Biology:	
CBS 261, 262, 263 or *BTY 181, 182 or **ZY 201, 202	8 to 9
Chemistry:	
***CY 201, 202, 203, 204 or CY 211, 212, 213	12
CY 362, 363, 431 or 432 or CY 371, 372, 373, 374, 375	10 to 12
CY 341, 342, 343	8
CY 331	5
Physics:	
PS 211, 212, 213, 221, 222, 223 or PS 215, 216, 217, 225, 226, 227	12
Total	65 to 68

Recommended Electives:
MS 303, 304, 305; GY 201, 202; PS 330, 340, 440, 435, 445

*Transfer students with a year of Biology should not take BTY 181
**ZY 201 and CY 202 or 211 are prerequisites for ZY 202
***CY 201 does not count in major requirements.

EARTH SCIENCES IN THE JUNIOR HIGH SCHOOL

This specialization prepares teachers to teach the earth sciences and general science in the junior high school. Students may enroll in either the College of Education or the College of Arts and Sciences to pursue their degree. No grade less than "C" may be counted in this program.*

Course	*Quarter Hours*
Mathematics:	
MS 102	5
Biological Sciences:	
CBS 261, 262, 263 or **BTY 181, 182 or ZY 201, 202***	8 to 9
*Geology:****	
GY 201, 202, 392, 400, 421, 465, 470	28
MTY 200, 300 or ATY 141 or ATY 316, 317	8
Physics:	
PS 120	6
Chemistry:	
CY 201, 202, 203 or CY 211, 212	8 to 12
Total	63 to 68

Recommended Electives:

MTY 301, GY 501, CY 204, CY 213

*Students taking this program will take chemistry & physics instead of CPS 121, 122, and 123.

**Transfer students with a year of Biology should not take BTY 181.

***ZY 201 and CY 202 or 211 are prerequisites for ZY 202.

****This major in Geology is a Science Education major, not a Professional Geology major.

LIFE SCIENCES IN THE JUNIOR HIGH

This specialization prepares teachers to teach the life sciences and general science in the Junior High School. Students may enroll in either the College of Education or the College of Arts and Sciences to pursue their degree. No grade less than "C" may be counted in this program.

Course	*Credits*
Mathematics:	
MS 102	5
Biological Sciences:	
*BTY 181, 182, ZY 201 or **ZY 201, 202, BTY 203	13
BTY 310 or ZY 574	5
ZY 308	5
BTY 501 or ZY 505	5
BCY 300 or BCY 302	4
AY 362, 363 or ZY 321, EY 300	5
Physical Sciences:	
***CY 201, 202, 203, 204 or CY 211, 212, 213	12
PS 120	6
GY 201 or ATY 141 or ATY 316, 317	4 to 6
Total	64 to 66

Recommended Electives:

BTY 342, 370, ZY 325, GY 202, MTY 202, 300

*Transfer students with a year of biology should not take BTY 181.

**ZY 201, and CY 202 or 211 are prerequisites for ZY 202.

***CY 201 does not count in total credits required in this program.

PHYSICAL SCIENCES IN THE JUNIOR HIGH SCHOOL

This specialization prepares teachers to teach the physical sciences and general science in the junior high school. Students may enroll in either the College of Education or the College of Arts and Sciences to pursue their degree. No grade less than "C" may be counted in this program.*

Course	*Quarter Hours*
Mathematics:	
MS 301	5
Biological Sciences:	
CBS 261, 262, 263, or	
**BTY 181, 182, or	
***ZY 201, 202	8 to 9
Chemistry:	
****CY 201, 202, 203 or CY 211, 212	8
*Physics:*****	
PS 211, 212, 213, 221, 222, 223	15
PS 330, 340, 435, 445	10
ATY 141 or ATY 316, 317	5 to 6
MTY 200 or MTY 300	3
CY 204 or CY 213	4
Electives:	
ASC 341, CY 362, 363, GY 201, 202, GY 304, MS 302, MTY 301, PS 300, 310	3 to 4
Total	61 to 64

*Students taking this program will take chemistry and physics instead of CPS 121, 122, and 123.

**Transfer students with a year of Biology should not take BTY 181.

***ZY 201 and CY 202 or 211 are prerequisite for ZY 202.

****CY 201 may not be counted as a part of the major.

*****This major in Physics is a Science Education major, not a Professional Physics major.

PHYSICS

The physics specialization leads to the certification to teach physics at the high school level. Students may enroll in either the College of Education or the College of Arts and Sciences. No course in which the grade earned is below "C" may be counted in this program.

Course	*Credits*
Mathematics:	
MS 301, 302, 303, 304	20
Biology:	
CBS 261, 262, 263 or	
*BTY 181, 182, or **ZY 201, 202	8 to 9
Chemistry:	
***CY 201, 202, 203, 204 or	
CY 211, 212, 213	12
*Physics:****	
PS 215, 216, 217, 225, 226, 227	12
PS 300, 310, 330, 340, 415, 435, 445	18
PS 400, 410, 430, 440; ATY 316, 317	6
Total	76 to 77

Recommended Electives:

Any course in Physics at the 400 or 500 level not used to satisfy the above programs, MS 305, GY 201, 202.

*Transfer students with a year of Biology should not take BTY 181.

**ZY 201 and CY 202 or 211 are prerequisites for ZY 202.

***CY 201 does not count in total credits required in this program.

****This major in Physics is a Science Education major, not a Professional Physics major.

SOCIAL STUDIES SPECIALIZATION

This is a joint program with the College of Arts and Sciences. Students may enroll in either the College of Education or the College of Arts and Sciences.

A minimum of 63 hours in social science beyond the basic general education course is required. No course in which the grade earned is below "C" may be counted in these 63 hours.

A student may elect to concentrate in one of the following social sciences: anthropology, economics, geography, history, political science, or sociology. For those majoring in a field other than history, 20 hours of history are required. The student who elects the program outlined below will be eligible for teacher certification in social studies if his distribution includes credit in at least four separate social studies subjects. Otherwise, certification is only in his major field of concentration and/or a subject in which he has 18 quarter hours of credit. A student should plan a program, in consultation with his advisor, which includes the following minimum requirements:

	Quarter Hours
Major Field (APY, ES, GPY, HY, PCL or SY)	36
HY (HY 201, 202, 245, 246 and one HY elective)	20
Social Science Electives	16
Total*	72

*Nine quarter hours of the total may be basic general education course credits. This may either be CSS or transferred social science credit that is not otherwise used in the teaching field.

SPECIAL EDUCATION

The bachelor's degree in special education, with a major area of concentration in mental retardation, is offered through the Department of Special Education.

A minimum of 79 hours is required beyond the basic general education program. No course in which the grade earned is below "C" may be counted in this program. Suggested electives for University College students are:

PSY 201	SCH 285
PSY 309	MSC 260, 261
SCA 330	PHA 361, 373

Required Upper Division Courses	*Credits*
Introduction to Special Education EDH 300, PSY 312, SCH 340	12
Foundations of Education EDF 345, EDF 320	10
Special Education EDH 500, EDH 501, EDH 503, EDH 504	16
Elementary Education EDE 300, 320, 331, 350, 360, 370, 375	28
Student teaching—EDH 405	16
Electives*	13-17

*Suggested Electives: EH 491, 492; PSY 306, 410, 421; SCH 490, 495, 496; ED 418, 419; EDF 341, 440, 442, 450.

Major fields of concentration in other areas of special education are available only at the graduate level. Students interested in such areas as learning disabilities and emotionally disturbed children should consult with staff members in special education concerning electives at the undergraduate level.

SPEECH PATHOLOGY AND AUDIOLOGY

Students desiring to specialize in Speech Pathology or Audiology may enroll in either the College of Arts and Sciences or the College of Education. The under-

graduate program is pre-professional and requires a minimum of 43 quarter hours of Speech and 15 quarter hours of electives in related areas.

REQUIRED COURSES	*Credits*
Public Speaking	
SCH 201	4
Speech and Hearing Sciences	
SCH 285, 385, 386, 490	20
Speech Pathology and Audiology	
SCH 341, 361, 540, 560	14
Speech Electives	
SCH 495, 496, 541, 542, 543, 549, 570, 571, 572	5-8
	43-46
Electives in Related Areas (determined by adviser)	15

Information about the Audiology or Speech Pathology programs may be obtained through the Department of Speech, 335 Arts and Sciences Building, or the Office of Undergraduate Studies, 124 Norman Hall. Students are urged to contact the undergraduate advisor of the particular program as early as possible.

To qualify for the Certificate of Clinical Competence in Speech Pathology or in Audiology awarded by the American Speech and Hearing Association or to obtain endorsement by the College of Education and the Department of Speech for State Department of Education certification in Speech Correction or Hearing Disabilities, it is necessary to complete a master's degree or equivalent.

OTHER PROGRAMS

Students in the College of Education and the College of Arts and Sciences may have individual programs planned by selecting one or two areas from fields not listed or combinations which do not appear as regular programs in teacher education. Programs provided for in this section will be worked out by the student and his advisor on an individual basis. Such individual programs must be approved by the Deans of both the College of Arts and Sciences and Education. The planning of combination programs will take into account the personal and educational objectives of the student, the relationship between the fields in the proposed combination, the certification requirements of the state and the employment possibilities which the combination being considered offers. For combination programs preparation must include a minimum of 36 quarter hours above any comprehensive or general education courses in a field and 27 quarter hours, exclusive of general education courses, in the second. This assumes that the two fields are sufficiently related as to supplement each other. If the two fields are essentially unrelated 36 quarter hours will be required in each. A guide to the specific courses required in each field may be found in the regular Arts and Sciences-Education programs. No courses in which the grade earned is below "C" may count in these programs.

Individual programs may be planned for College of Education students interested in a five year program leading to certification for teaching in the junior colleges. Such programs do not provide for meeting certification requirements at the elementary and secondary school levels and graduates will not be recommended for certification except at the junior college level and upon completion of the master's degree. Such programs must be worked out with the student and his advisor on an individual basis and be approved by the Undergraduate and Graduate Studies Offices. Students interested in such programs should contact the Undergraduate Studies Office for additional information.

JUNIOR COLLEGE ADMINISTRATION AND TEACHING

M.Ed., Ed.S., and Ed.D. programs, which meet certification requirements for junior college teaching, are available in many fields. Ed.S. and Ed.D. programs are available for training junior college administrators. Students interested in administration or teaching at this level should consult with the head of the Junior College Center.

GRADUATE EDUCATION

DEGREES AND FIELDS OF SPECIALIZATION

Five graduate degrees are offered in the College of Education; the Master of Education, the Master of Arts in Education, the Specialist in Education, Doctor of Education, and Doctor of Philosophy.

Specialization at the master's degree level is possible in the following fields.

Agricultural Education
Art Education
Business Education
Counselor Education
Early Childhood Education
Educational Administration
Educational Media
Elementary Education
Foreign Language Education
Foundations of Education
Junior College Education
Language Arts Education
Mathematics Education
Music Education
Physical Education
Reading
Science Education
Secondary Education
Social Studies Education
Special Education
Supervision
Technical Education
Vocational Education

The Specialist in Education degree is designed to give the advanced training which prepares for a specific type of leadership position in the public schools.

Specialist in Education programs are available in many fields of concentration within Administration and Supervision, Curriculum and Instruction, Foundations of Education and Counselor Education.

The Doctor of Education degree and the Doctor of Philosophy degree are offered in Curriculum and Instruction, Educational Administration, Counselor Education, and Foundations of Education.

College of Engineering

GENERAL STATEMENT

The engineer engages in creative design and construction, in research and development—serving as the bridge between human needs and the storehouse of theoretical knowledge. He applies science to the common purpose of l.fe, coupling science with the management of men, money, machines, and materials. Engineering is a profession which challenges the individual, stimulating his ingenuity and resourcefulness, and yielding a rewarding sense of creative accomplishment.

The engineer deals with real problems in the real world. This requires a thorough knowledge of mathematics and the sciences as well as an understanding of the legal, economic, and social restrictions of contemporary society. The engineer must be able to communicate his judgments, plans, and decisions whether rendered orally or in writing. This communication must be precise and clear. He must have enough knowledge in his professional field and in allied subjects to be able to work with other engineers, scientists and technicians, to fulfill his engineering assignments. Above all, he must discharge his duties as a responsible citizen.

Engineering is a demanding and difficult area of human endeavor, but an eminently rewarding one, requiring the exercise of the highest mental attributes and adherence to uncompromising standards of ethics and professional integrity. Although the engineer must possess the precise logical skills of the mathematician and scientist, his ultimate dependence upon his own considered judgment is a characteristic unique to engineering.

The various curricula of the College of Engineering are designed to give the student suitable education for his entry into the profession of engineering. The undergraduate programs are founded on mathematics and the natural sciences. Additional emphasis is placed upon the humanities and social sciences to develop the beginnings of sound judgment, perspective and curiosity. Many graduates continue their formal education at the post-graduate level and work towards the master's and doctor's degree to qualify for research, administration, or teaching. The student must realize, however, that education does not stop with the completion of a degree program. The truly professional engineer never stops learning.

The field of engineering has been thought of almost exclusively as a man's domain. In the past few years, however, increasing numbers of women have been entering this field and are taking their places in the profession on an equal footing with men.

The curricula of the College of Engineering are planned to encompass these objectives and to provide a wide range of students choice in the selection of professional degree objective. The Department represents the organizational element within the College of Engineering which encompasses both the academic and administrative responsibilities for baccalaureate study. The Departments with baccalaureate degree responsibilities are:

Aerospace Engineering Department
- Bachelor of Science in Aerospace Engineering

Agricultural Engineering Department
- Bachelor of Science in Agricultural Engineering

Chemical Engineering Department
- Bachelor of Science in Chemical Engineering

Civil Engineering Department
- Bachelor of Science in Civil Engineering

Electrical Engineering Department
- Bachelor of Science in Electrical Engineering

Engineering Science and Mechanics Department
- Bachelor of Science in Engineering Science

Industrial and Systems Engineering Department
- Bachelor of Science in Industrial Engineering
- Bachelor of Science in Systems Engineering

Mechanical Engineering Department
- Bachelor of Science in Mechanical Engineering

Metallurgical and Materials Department
Bachelor of Science in Metallurgical Engineering
Nuclear Engineering Science Department
Bachelor of Science in Nuclear Engineering Sciences

For information relative to graduate degrees in engineering refer to other sections of this catalog, or the Graduate School catalog.

The Engineers' Council for Professional Development has accredited the curricula of the College of Engineering in aerospace, agricultural, chemical, civil, electrical, engineering sciences, industrial, mechanical, metallurgical, and systems engineering. The College of Engineering has prepared an illustrated bulletin entitled *The Engineering Profession—Preparation and Studies at the University of Florida* describing the educational and research activities of the College. Prospective students may secure a copy of this bulletin without cost from the Office of the Dean of the College or from the Office of the Registrar of the University. Other publications and general information concerning the engineering profession and engineering education may be obtained from the Office of the Dean of the College of Engineering by request.

The General Plan of Study

The curricula leading to the various Bachelor's degrees in Engineering are organized into a carefully developed sequence. The aggressive, strongly motivated student with proper high school preparation can negotiate this curriculum successfully within 12 quarters by carrying loads of 17 hours. The majority of students will require more than 12 quarters.

Many students, for different reasons, are not prepared to enter directly into the prescribed curriculum. For example, a student may have attended a high school which did not offer all the preparatory courses necessary for the entry into an engineering program. Or, possibly the student changed his career objective late in his high school program and did not as a result complete the usual high school preparation required of potential engineering students. In all such cases the student must expect that it will increase the time required to complete degree requirements.

As a general rule, subjects basic to all fields of engineering are studied while the student is enrolled in the University College or junior college pre-engineering curriculum. Then, when professional study is undertaken in the College of Engineering, the individual characteristics and interests of the student are given consideration in the development of a program of studies most beneficial to him.

Pre-Engineering Curriculum

All applicants for admission to the University must meet the general requirements set forth elsewhere in this catalog under "admissions." Potential applicants should read this detailed statement. For convenience, however, these University admission requirements are summarized very briefly here.

All applicants shall have been graduated from an accredited high school with at least a C average in at least 12 to 14 units of academic subjects and have a record of good personal conduct. Florida students must also achieve a satisfactory score on the Florida Twelfth Grade Tests.

Because of a limited entering freshman class, only a small number of highly qualified students from states other than Florida may be admitted. The minimum requirements for consideration are essentially the same as for Florida students except that comparable scores on the Scholastic Aptitude Test of the College Entrance Examination Board are expected. In addition, each out of state student must achieve an academic average of "B" or better and should rank in the top fifth of his class.

Once admitted to the University the potential engineering student must additionally present academic credentials which qualify him for direct entrance into the regular pre-engineering curriculum in the University College. Many students will have developed the necessary academic preparation while in high school; others will not and will find it necessary to take additional course work in the University College before commencing the regular pre-engineering curriculum. Such students may transfer to the College of Engineering when they have satisfactorily completed 96 quarter hours of course work including the general education requirements of the University College.

For direct entrance into the regular, specified pre-engineering curriculum in the University College, the properly qualified student should have completed the following program of courses, either in high school or in the University College:

Subject	*Years*
English—	
or English (3 units) and one foreign language (2 units)	4 or 5
Elementary Algebra	1
Intermediate Algebra	½
Advanced Algebra	½
Plane Geometry	1
Trigonometry	½
Chemistry	1
Physics	1
American History or Social Studies	2
Electives	4½ to 3½

The pre-engineering curriculum is planned on the assumption that the entering freshman student has completed the foregoing high school program with a good performance record. Students who lack these basic essentials will be inadequately prepared for what is undeniably a very challenging program of study. Such students must properly prepare themselves, and this will increase the time required to complete the baccalaureate degree.

Students Who Have Not Completed the Minimum High School Preparation

Prospective students who have not completed the minimum high school preparation just described are advised to broaden their educational background as soon as possible, preferably during their first quarter at the University.

Students requiring further preparation in algebra and trigonometry will be required to complete MS 102 with a grade of C or better for admission to the regular pre-engineering curriculum. Moreover, the student without the specified preparation in mathematics will find that he will have difficulty with the required chemistry courses and should delay enrollment in chemistry until he has completed MATHEMATICS 102. Such students should take CY 201 concurrently with MS 102.

Students who *do not* have 1 credit in high school chemistry, 3 credits in high school mathematics with a percentile rank of 85 or higher in the mathematics portion of the Florida Twelfth Grade Testing Program, and a total percentile rank on the Twelfth Grade Testing Program of 420 or higher will take the chemistry series CY 201, CY 202, CY 203, and CY 204 instead of CY 211, CY 212 and CY 213.

Students with problems of the nature described above should plan their programs of study in consultation with the counseling and advising staff of the College of Engineering.

Exemptions

Certain students, by virtue of high scholastic qualifications, may be exempt from certain elementary courses normally required for graduation. Students who have participated in Advanced Placement Programs may fall into this category.

Recommended Pre-Engineering Curriculum—

(See the University College section of this catalog.)

Transfer Students

All transfer students are required to take EGC 180—Engineering Concepts and Studies—during their first quarter of registration at the University of Florida if they plan to work toward a Baccalaureate degree in Engineering.

Students who have attended only a Florida junior college and received the Associate of Arts degree in a college parallel program in engineering, and are certified to have met the general education requirements, are eligible for admission directly to the College of Engineering as juniors. Not more than 64 semester hours (96 quarter hours) earned at a junior college can be applied toward degree requirements. Where a grade of D is earned in a course taken at a junior college, credit in such course cannot be applied toward engineering degree requirements, and if a required course, must be made up in the upper division.

Students who transfer from a junior college prior to receiving the Associate of Arts degree in a college parallel program in engineering and students who transfer from other institutions with less than 64 semester hours (96 quarter hours) of acceptable college credits are required to complete their pre-engineering programs in the University College.

Potential engineering students attending junior colleges that do not offer a pre-engineering curriculum should write to the Dean of the College of Engineering for guidance.

AEROSPACE ENGINEERING

The undergraduate curriculum in Aerospace Engineering is designed to educate engineers for a career in aeronautics and/or astronautics and to prepare certain students for further academic training leading to careers in advanced research and development in the above-mentioned fields. To meet these broad requirements the curriculum has been made flexible through the use of a relatively large number of technical electives. These are arranged to develop a program of study keyed to the particular interests of the individual student.

In keeping with modern trends in the field, the typical program in Aerospace Engineering offers the material customarily found in Aeronautical Engineering together with material related to engineering problems of extra-atmospheric flight. Fundamental engineering principles associated with both atmospheric and space flight are provided in courses such as aerodynamics, structures, problems in astronautics and design. Strong emphasis is placed on physical and mathematical fundamentals. All of this is essential preparation for the future as Aerospace Engineering continues to develop in depth and to broaden in scope.

A large segment of the nation's aerospace industry is now located in Florida, and it is growing. For this reason there are numerous opportunities for employment of aerospace engineers in the state. Also many graduates accept employment in industry and in government research laboratories elsewhere.

Degree Programs: The Aerospace Engineering Department offers the following degrees: Bachelor of Science in Aerospace Engineering, Master of Engineering, Master of Science in Engineering, the Engineer Degree, and Doctor of Philosophy.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN AEROSPACE ENGINEERING

Pre-Engineering Program	96
ASE 300 Introduction to Aerospace Engineering	3*
ASE 301 Aerospace Analysis 1	3
ASE 302 Aerospace Analysis 2	3
ASE 303 Aerospace Analysis 3	3
ASE 401 Aerodynamics 1	5
ASE 441 Aerospace Structures 1	5
ASE 461 Aerospace Propulsion 1	5
ASE 491 Aerospace Projects 1	2
ASE 492 Aerospace Projects 2	2
ASE 493 Aerospace Projects 3	2
EE 301 Introduction to Electrical Engineering	5
EGR 193 Engineering Graphics	3*
ESM 304 Engineering Mechanics 1	5
ESM 305 Engineering Mechanics 2	5
ESM 311 Fluid Mechanics	4
ISE 351 Numerical Techniques	2
ME 360 Thermodynamics 1	5
MTL 300 Materials 1	4*
General Electives	50**
Total Quarter Hours	202

*This is part of the departmental requirement in the Pre-Engineering Program.
**At least seventeen hours of these electives must be taken within the Aerospace

Engineering Department and at least six but not more than ten hours must be non-technical electives. All electives must be approved by the department counselor. The Aerospace Technical Electives (17 credits) will be selected from the following list:

ASE 402 Aerodynamics 2
ASE 403 Aerodynamics 3
ASE 404 Aerospace Laboratory
ASE 442 Aerospace Structures 2
ASE 443 Aerospace Structures 3
ASE 444 Aerospace Structures Laboratory
ASE 451 Introductory Aeroelasticity
ASE 462 Aerospace Propulsion 2
ASE 471 Elements of Manned Atmospheric and Space Flight
ASE 475 Instrumentation for Aerospace Engineers
ASE 485 Aerospace Design 1
ASE 486 Aerospace Design 2
ASE 487 Aerospace Design 3
ASE 494 Problems in Astronautics
ASE 498 Special Problems
ASE 570 Principles of Guidance and Control
EGC 541 Tensor Fields and Fluid Dynamics

AGRICULTURAL ENGINEERING

The agricultural and food industry is the largest single industry in the United States and in Florida. The growth of agriculture and technology have proceeded together and now agricultural production and processing industries require advanced machines and systems. The industries providing these machines and the related systems require engineering skills which agricultural engineers provide. The agricultural engineer is also involved in natural resources conservation in his drainage and watershed hydrology activities.

Agricultural engineering is unique in its concern for the engineering problems of biological production and processing. The agricultural engineer solves the engineering problems associated with agriculture such as the conversion of the sun's energy into biological (food) products using soil nutrition resources and water in controlled ways. He uses his basic engineering training combined with knowledge of agricultural and biological systems to design functional machines and equipment to process and handle these products so that quality is enhanced. No challenge could be greater and more rewarding than that related to food production and processing in view of the population explosion and projected world food shortage.

The education of the agricultural engineer includes basic physical and engineering sciences and also courses in biology, soils, plant science and animal science. The courses in agricultural engineering unify the concepts learned into a practical ability to solve a broad range of problems confronting the agricultural and food industry.

Agricultural engineers have numerous career opportunities in various segments of the large Florida agricultural industry and with manufacturers of equipment and supplies for agriculture throughout the Nation. Agricultural engineers are sought by state and federal agencies for careers in irrigation, drainage and water resource management and pollution control. Excellent opportunities are available for graduate study. This program is offered cooperatively with the College of Agriculture.

Degree programs: The Agricultural Engineering Department offers the following degrees: Bachelor of Science in Agricultural Engineering, Master of Engineering, Master of Science in Engineering, and the Engineer Degree.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN AGRICULTURAL ENGINEERING

Course			*Credits*
Pre-Engineering Program			96
Biological Science Requirement[1]			5*
EGR	193	Engineering Graphics	3*
ISE	351	Numerical Techniques	2*
or			
ISE	357	Analog Computer Principles (2)	
ESM	301	Engineering Mechanics, Statics	4
ESM	302	Engineering Mechanics, Dynamics	4
ESM	303	Strength of Materials	4
ESM	311	Fluid Mechanics	4
or			
CE	320	Hydraulics 1 (4)	
EE	301	Introduction to Electrical Engineering	5
ME	360	Thermodynamics	5
ME	430	Heat Transfer 1	3
MTL	300	Materials	4
or			
CE	340	Civil Engineering Materials (4)	
CE	300	Engineering Measurements 1	2
SLS	330	General Soils	5
STA	330	Engineering Statistics	3
Animal Science Requirement			3
Plant Science Requirement			3
AGE	318	Agricultural Field Machines 1	3
AGE	412	Agricultural Tractors and Power Units	3
AGE	414	Agricultural Field Machines 2	3
AGE	415	Soil and Water Conservation Engineering	3
AGE	416	Agricultural Drainage Engineering	3
AGE	417	Irrigation Engineering	3
AGE	418	Agricultural Structures and Equipment 1	3
AGE	419	Agricultural Structures and Equipment 2	3
AGE	435	Agricultural Process Engineering 1	3
AGE	436	Agricultural Process Engineering 2	3
		Electives	27
		Total Upper Division	106
		Total Credits	202

*This is part of the Department requirement in the Pre-Engineering Program

[1] The Biological Science requirement may be satisfied by completing one of the following courses:

BTY 181 Introductory Botany (5)
BCY 300 Microbiology (5)
ZY 202 Principles of Animal Biology (5)

TECHNICAL ELECTIVES

BTY 310 Elementary Plant Physiology
CE 370 Structural Analysis 1
CE 460 Soil Mechanics and Foundation 1
GY 220 Engineering Geology
ESM 421 Engineering Science 1
ENE 520 Environmental Engineering
ISE 420 Engineering Economy
ISE 441 Contracts Specification and Ethics
ME 465 Refrigeration and Air Conditioning
MS 501 Intermediate Differential Equations for Engineers and Physical Scientists
PS 310 Electricity and Magnetism 1

PS 415 Electrical Measurements
PS 515 Electronics
VY 321 Anatomy and Physiology of Domestic Animals

CHEMICAL ENGINEERING

Although chemical engineering has existed as a field of engineering for only about fifty years, its name is no longer completely descriptive of this dynamic, growing profession. For the work of the chemical engineer is neither restricted to the chemical industry nor limited to chemical changes or chemistry. Instead, modern chemical engineers, who are also called *process* engineers, are concerned with *all* the physical and chemical changes that matter is made to undergo to produce economically a product or result that is useful to mankind. More than most fields, the education of the chemical engineer has been based on the fundamental sciences of physics and chemistry, on mathematical and computer techniques, and on basic engineering principles. Such a broad background has made the chemical engineer extremely versatile and capable of working in a wide variety of industries: chemical, petroleum, aerospace, nuclear, materials, sanitation, food processing, and computer technology. The chemical industry alone provides an opportunity for the chemical engineer to participate in the research, development, design or operation of plants for the production of new synthetic fibers, plastics, chemical fertilizers, vitamins, antibiotics, rocket fuels, nuclear fuels, paper pulp, photographic products, paints, fuel cells, transistors, and the thousands of chemicals that are used as intermediates in the manufacture of the above products. Since the chemical industry is the fastest growing in the nation (126% during past decade), the demand for chemical engineers is not only great at present, but will continue to grow as more materials, foods, and other products continue to be produced synthetically from the molecule.

In practice, the activities of the chemical engineer are sufficiently diversified to attract a wide range of talents and abilities. The chemical engineers working in *process design* determine the sequence of steps to be followed in producing a useful product, calculate the sizes of the equipment required and the total cost; those working in *developmental research* do small scale studies on new processes or products; those working in *production* improve and coordinate the operation of plants and equipment. Others do *fundamental research* on the laws of science and their application. Many chemical engineers work in technical sales, cost estimation, patent law, and plant supervision. A chemical engineering background is often the best route to top-level management positions.

Among the six chemical engineering and eight interdisciplinary programs offered, the process engineering option is recommended for most students because of the unusual versatility of employment opportunities in all areas that it provides. However, the other programs are available for students who desire greater flexibility in their academic program or who have more definite career objectives. These include professional programs in *chemical engineering science, chemical engineering systems, process engineering,* and in various *interdisciplinary areas. Practice* programs are also available for students who are interested in management positions in operations, or in technical sales and services, or who wish to work in specific industries.

Degree Programs: The following degrees are offered by the Chemical Engineering Department: Bachelor of Science in Chemical Engineering, Master of Engineering, Master of Science in Engineering, Doctor of Philosophy.

OPTIONS IN CHEMICAL ENGINEERING PROGRAM

Course requirements are shown below for the Applied Science and Practice Options. Courses in chemical engineering may be scheduled to permit a student to complete the program of four academic years in three calendar years. However, if he prefers to use one quarter each year for industrial employment, he may complete the program in the traditional four calendar years. In addition various types of cooperative programs permitting work periods of two quarters each year can be scheduled.

APPLIED SCIENCE OPTIONS

These programs lead after four years to the degree of Bachelor of Science in Chemical Engineering. However, it is expected that students who qualify will continue into the fifth year involving work leading to the Master of Engineering or Master of Science degrees. The *process option* is a high quality fundamental program designed to produce an unusually versatile engineer who is capable of working in a large number of process industries and at a wide latitude of jobs such as process design, process research and development, and in the improvement of chemical and physical process and plant operations. The *chemical engineering systems option* provides for additional specialized course work in systems engineering, and computer automation. The *chemical engineering science option* is primarily designed to prepare the student for graduate work involving fundamental research. Typical technical electives are given in tables below. Other approved courses in applied mathematics and science may be substituted where this is felt to benefit the student. The *interdisciplinary options* permit the chemical engineering student with parallel interests in other fields to take approved course work in the following related engineering disciplines: Aerospace, Biomedical, Electrical, Environmental, Materials, Mechanical, Nuclear, Food Science.

PRACTICE OPTIONS

The *practice programs* are designed for students with strong chemical engineering backgrounds who also have interests in engineering plant operations and supervision, in business administration, in marketing, or technical sales and services. These programs lead to the degree of Bachelor of Science in Chemical Engineering and are designed for industrial employment or as a preparation for further work in Business Administration or Law. Admission to the graduate programs in engineering is also possible for those students who are qualified. These operations and management options provide for the preparation of a special project study, selected by the student, and dealing with a particular industry, such as the plastics, phosphate fertilizer, synthetic fibers, pulp and paper, aerospace propulsion, nuclear processing, petroleum refining, citrus processing, marine chemicals, or detergent industries. These projects may involve an industry cost analysis, a plant design, a development project, or an operations research study.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN CHEMICAL ENGINEERING

(see also Pre-Engineering Requirements)

		CREDITS	
		Applied	*Practice*
Pre-Engineering Departmental Requirements			
EGR 183	Engineering Graphics I	(2)	(2)
CHE 301	Introduction to Chemical Engineering	(5)	(5)
Elective (EGC 300, 2 cr. or CHE 300, 1 cr.)		(2)	(2)
	Subtotal	(9)	(9)
Introductory and General Engineering Courses			
CHE 302	Chemical Engineering Lab 1	1	1
EE 301	Introduction to Electrical Engineering	5	5
ESM 304	Engineering Mechanics I	5	5
ESM 305	Engineering Mechanics II	5	5
CHE 353	Materials of Engineering	3	3
STA 330	Engineering Statistics	3	3
CHE 481	Seminar	1	1
	Non Technical Electives	9	9
	Subtotal	32	32

Chemistry Emphasis			
†CY	362 Organic Chemistry	4	4
CY	451, 452, 453 Physical Chemistry	9	9
CY	454, 455 Physical Chemistry Labs	3	3
CHE	375 Process Instrumental Analysis	3	3
CHE	376 Chemical Engineering Lab 3	1	1
†CHE	573 Organic Chemical Processing	3	3
	Subtotal	23	23
Thermodynamics and Rate Processes			
CHE	333 or ME 360, CHE 433 Thermodynamics 1, 2	6	6
CHE	343 Transport Phenomena	3	3
CHE	344 Chemical Engineering Lab 4	1	1
CHE	345 Interfacial Transport Phenomena	3	3
CHE	421 Chemical Kinetics & Processing	3	3
CHE	422 Chemical Engineering Lab 7	1	1
	Subtotal	17	17
Engineering Analysis and Design			
CHE	311 Systems Analysis	2	2
CHE	312 Chemical Engineering Lab 2	1	1
CHE	363 Solid-Fluids System Design	3	3
CHE	411 Process Control Theory	3	0
CHE	412 Chemical Engineering Lab 5	1	0
CHE	462 Chemical Engineering Lab 6	2	2
CHE	463 Stagewise Separation Design	3	3
CHE	471 Process Cost Estimation	3	3
CHE	473 Process Design	3	3
CHE	576 Process Economics	0	3
CHE—*Electives		0	6
	Subtotal	21	26
Applied Science or Practice Option (see below)		24	19
	Total Upper Division	117	117
	Lower Division Credits	96	96
	Total Degree	213	213

* CHE Electives may be any 400 or 500 level chemical engineering course not previously taken for credit.

† The organic chemistry sequence CY 371, 372, and 373 may be substituted for CY 362 and CHE 573.

APPLIED SCIENCE OPTIONS

			Credits			
			Systems	*Process*	*ChE Science*	*Interdisciplinary*
CHE	413	Process Optimization	3	0	0	0
CHE	423	Reactor Dynamics and Design	3	3	3	0
CHE	435	Applied Molecular Theory	0	0	3	0
CHE	464	Chemical Engineering Lab 8	2	2	0	0
CHE	475	Advanced Process Design	0	3	0	0
CHE	492	Chemical Engineering Lab 9	0	1	1	0
CHE	503	Mathematical Models in Chemical Engineering	3	3	3	0
CHE	551	Polymeric Materials	0	3	0	0
CHE	576	Process Economics	3	3	0	0
ISE	—	Elective	3	0	0	0
ESM	—	Applied Math Electives	0	0	6	0
EGC	541	Tensor Fields and Fluid Dynamics	0	0	3	0
		Other Electives	7	6	5	24**
		Subtotals	24	24	24	24

** Technical Electives to be chosen from other departments. More than half of them shall be 400 to 500 level courses and concentrated in one area (see list below).

TYPICAL ELECTIVES

INTERDISCIPLINARY PROGRAMS

Chemical-Aerospace

ASE 300 Introduction to Aerospace Engineering
ASE 461,2 Aerospace Propulsion 1,2
ASE 401 Aerodynamics 1
ASE 471 Elements of Manned Atmospheric and Space Flight

Chemical-Biomedical

CY 371, 372, 373 Organic Chemistry
ZY 201 Introductory Zoology Lab
ZY 202 Principles of Animal Biology
ZY 310 Embryology
ZY 311 Functional Morphology
ZY 570 Cellular Physicology

Chemical-Electrical

EE 321,2,3 Electronics 1,2,3
EE 331,2,3 Circuits 1,2,3
CHE 547 Electrochem. Eng.
EE 474 Control Systems

Chemical-Environmental

CE 450 Water Supply Eng.
ENE 531 Water & Waste Water Analysis
ENE 500 Treatment of Waste Water
ENE 501 Industrial Waste Treatment
ENE 522 Environmental Engineering

Chemical-Food Science

FS 402 Chemical Principles of Food Science 1
FS 404,5 Engineering Principles of Food Science 1,2

Chemical-Materials

MTL 310 Electrical Properties of Materials
MTL 522 Selection of Materials
MTL 551 Corrosion
CHE 551 Polymeric Materials

Chemical-Mechanical

ME 380 Mechanisms and Kinematics
ME 463 Heat Power Engineering
ME 482 Machine Analysis and Design 1
ME 591 Gas Turbines and Jet Engines

Chemical-Nuclear

NES 401,2,3 Introduction to Nuclear Engineering 1,2,3
CHE 578 Nuclear Chemical Engineering
NES 404 Radiological Safety Engineering
NES 530 Applications of Nuclear Radiation Techniques
CY 550 Nuclear Chemistry

TYPICAL ELECTIVES
FOR APPLIED SCIENCE OPTION

Chemical Engineering Systems Concentration

ISE 451 Numerical Techniques in Systems Engineering
ISE 470 Operations Research
EE 304 Electronic Systems and Instrumentation
EE 475 Digital Control

Science Concentration

EE 304 Electronic Systems and Instrumentation
ESM 302 Dynamics
ESM 311 Fluid Mechanics
ESM 513 Introduction to Mechanics of Continua
CY 550 Introduction to Nuclear Chemistry
PS 340 Modern Physics 1
PS 440 Modern Physics 2
PS 560 Nuclear Physics
PS 540 Introductory Quantum Mechanics
PS 300 Mechanics 1
PS 400 Mechanics 2

Process Engineering Concentration

Any electives or courses in other options; EE 304 is strongly recommended.

PRACTICE OPTIONS

TYPICAL ELECTIVES
PRACTICE PROGRAMS

Business and Sales		*Credits*
EH 302	Report Writing	3
SCH 201	Public Speaking	
or		3
SCH 303	Technical and Professional Communication	
MGT	Electives	13
MKG	Electives	
		19

Operations		*Credits*
MTL 551	Corrosion	
or		3
CHE 547	Electrochemical Engineering	
CHE 464	Chemical Engineering Lab 8	2
CHE 551	Polymeric Materials	3
MGT	Electives	11
		19

Liberal Studies	*Credits*
Philosophy Courses, such as, PPY 212, 213, 214, 231, 333, 346, 370	12 max.
and/or	
Religion Courses, such as, RN 251, 364, 371	12 max.
and/or	
Political Science Courses, such as, PCL 203, 207, 209, 504, 505, 506, 512, 513, 514, 524, 540	12 max.
and/or	
Sociology Courses, such as, SY 201, 202, 320, 340, 350, 380, 504, 528, 581	12 max.
and/or	
History Courses, such as, HY 201, 202, 203, 245, 246, 247, 325, 326, 327, 340, 341, 342, 370, HY 381, 382, 383, 432	12 max.
and/or	
English Courses, such as, EH 214, 215, 216, 221, 222, 223, 301, 302, 303, 421, 422, 423, 442, EH 443, 444 and other	12 max.
and/or	
Foreign Languages FH, GN, RSN, SH	12 max.
Total (for credit)*	19 max.

* Choose from only two of above areas. Courses in other areas may be taken as additional work above the 213 credits required for the B.Ch.E.

CIVIL ENGINEERING

Civil Engineering is directly concerned with the activities of man and his environment. It is the oldest and most diverse branch of engineering and includes the design and construction of bridges, buildings, dams, waterways, airports, pipe lines, missile launching facilities, blast shelters, railroads, highways, sanitary systems, foundations, harbors, water works, and many other systems and structures upon which modern civilization depends. In its broadest sense, the function of the civil engineer may therefore be defined as the adaptation of the physical features of the earth to the needs of man. Approximately one-fourth of all engineers are engaged in Civil Engineering.

The concentration of population into cities, the mass use of the automobile and the airplane, the increasing demands of industry for greater quantities of power and the public's demand for clean streams and beaches, for clean air, and for adequate civilian defense present the civil engineer with many challenging problems.

To assist the young engineer to meet these challenges, the Civil Engineering Department offers a wide selection of courses in the fields of structural engineering, soil mechanics, foundations, hydraulics, coastal engineering, highways, and environmental engineering. Beyond the bachelor's degree, advanced degrees may be obtained in the several major areas of civil engineering such as transportation, hydraulics, structural, soil mechanics, foundations and construction.

While it is essential that the civil engineer understand the fundamentals of his chosen field, it is also necessary that he understand the role other branches of engineering play in the completed work. The Civil Engineering curriculum therefore includes courses from other engineering disciplines, and because of this broad program, it provides an excellent basic engineering education. Thus, the student who is not quite sure which field of engineering to choose is provided with the broadest of engineering backgrounds, a springboard, so to speak, to specialization.

Inspection Trip Requirement. All candidates for a Bachelor's degree in Civil Engineering must take part in an inspection trip. Details concerning this requirement should be secured by each student from the chairman of the department.

Degree Programs. The Civil Engineering Department offers the following degrees: Bachelor of Science in Civil Engineering, Master of Engineering, Master of Science in Engineering, the Engineer Degree, and Doctor of Philosophy.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN CIVIL ENGINEERING

See University College portion for Pre-Engineering Curriculum

			Credits
EGR	193	Engineering Graphics	3*
EGR	194	Design Processes in Engineering	2*
ESM	304	Engineering Mechanics 1	5
ESM	305	Engineering Mechanics 2	5
GY	220	Engineering Geology	4
EE	302	Elements of Electrical Engineering	5
ME	360	Thermodynamics	5
STA	330	Engineering Statistics	3*
CE	290	Civil Engineering Concepts	2*
CE	300	Engineering Measurements	2
CE	320	Hydraulics	4
CE	340	Civil Engineering Materials	4
CE	370	Mechanics of Engineering Structures	4
CE	371	Stress Analysis 1	4
CE	372	Stress Analysis 2	3
CE	400	Surveying and Field Measurements	2
CE	401	Construction Methods and Management	4
CE	410	Highway Engineering	4
CE	420	Hydraulics and Water Resources Engineering	4
CE	430	Public Works Planning	3
CE	450	Water Supply Engineering	4
CE	451	Sewerage and Waste Water Treatment	4
CE	460	Soil Mechanics	3

*This course is part of the departmental requirement in the Pre-Engineering Program.

CE	461	Soil Mechanics and Foundations	4
CE	470	Introduction to Structural Design	5
CE	490	Senior Seminar	1
CE	590	Computer Methods in Civil Engineering	3
Professional Electives			16***
Non-Technical Electives			4**
		Total Quarter Hours	202

**Elective choice from the social science and humanities areas is recommended.
***Professional Electives must be selected from the following, with no more than three courses from any given area of interest.

PROFESSIONAL ELECTIVES

Structures
CE 473 Steel Design (3)
CE 474 Design in Reinforced Concrete (4)
CE 571 Planning and Design of Industrial Buildings (3)
CE 572 Design of Highway Bridges (3)

Hydraulics
CE 421 Water Resources Engineering (3)
CE 521 Geohydrology (3)
CE 522 Open-Channel Hydraulics (3)
COE 400 Introduction to Coastal and Oceanographic Engineering (3)

Soil Mechanics and Foundations
CE 462 Foundation Design (3)
CE 560 Stress-Deformation Analysis of Soil Media (3)
CE 561 Soil Exploration for Engineering Design (3)
BCN 503 Adv. Construction Techniques (3)

Transportation
CE 412 Traffic Engineering (3)
CE 510 Highway Design (3)
CE 512 Transportation Engineering (3)

Environmental
ENE 500 Treatment of Wastewater (4)
ENE 531 Water and Waste Water Analysis (4)
ENE 522 Environmental Engineering (3)
ENE 534 Chemistry of Water Treatment (5)

Construction Management
CE 403 Structural Estimating (3)
CE 505 Construction Contracts & Specifications (3)
ISE 442 Accident Prevention Engineering (3)
MGT 310 Principles of Management (4)

General
BCY 300 Bacteria in Everyday Life (4)
MTL 300 Materials I (5)
PS 340 Modern Physics I (3)
PS 440 Modern Physics II (3)

COASTAL AND OCEANOGRAPHIC ENGINEERING DEPARTMENT

The Coastal Engineering Department of the University of Florida was established in 1955 as a part of the Engineering and Industrial Experiment Station. Its major functions are the preservation and improvement of the Florida sea coast, acting in an advisory capacity to appropriate agencies, and the pursuit of research that will be generally useful to the field of Coastal and Oceanographic Engineering. It is provided with laboratories which have counterparts in only one other institution in the United States. An undergraduate curriculum is being developed by the Department; however, no degree is offered. A doctoral program is presently offered under the auspices of the Department of Civil Engineering.

Degree Program: The Department of Coastal and Oceanographic Engineering offers the following degrees: Engineer Degree, Master of Engineering and Master of Science in Engineering.

ELECTRICAL ENGINEERING

Electrical Engineering is a science oriented branch of engineering primarily concerned with all phases and development of the transmission and utilization of power and intelligence. The study of electrical engineering is commonly divided into the academic areas of circuits, electronics, fields, electric energy engineering, communications, control, and computer sciences.

Because of the extremely rapid growth and changes relating to the application of electrical engineering principles, the curriculum is designed for concentration on a solid core of the basic foundation courses, rather than on a sampling of application courses which may soon become obsolete. Because of the strong core program, the electrical electives as listed are considered primarily as courses to be taken according to individual interest in order to permit a student to delve deeply into subject matter previously introduced. Other electives as indicated by the footnote may be selected from the approved lists of the Electrical Engineering Department.

The department's extensive laboratory facilities and varied research programs will assist in highlighting both the experimental and theoretical approaches to electrical engineering.

Beyond the baccalaureate degree the department offers graduate programs for students interested in advanced degrees. As more and more students are continuing to further their education in the graduate schools of the nation, it is advisable that those who may become qualified seek early counseling. Even as early as the seventh and eighth quarters, the course work in many cases may be directed toward future graduate work. Certainly, the choice of electives taken during the last few quarters of the undergraduate curriculum may relate to areas of interest to be pursued in the graduate program.

Degree Programs: The Electrical Engineering Department offers the following degrees: Bachelor of Science in Electrical Engineering, Master of Engineering, Master of Science in Engineering, Engineer Degree, and Doctor of Philosophy.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

The upper division curriculum in electrical engineering requires 106 quarter credits after completion of a lower division pre-engineering program of 96 quarter credits.

EGR 183	Engineering Graphics 1	2°
	Technical or Non-Technical Elective	3°
EE 301	Introduction to Electrical Enginering	5°
	Pre-Engineering Total	96
EE 321, 322	Electronics 1 and 2	8
EE 321, 322, 333	Circuits 1, 2 and 3	9
EE 352, 353	Electromagnetic Fields 1 and 2	7
EE 361	Introduction to Computer Systems	3
EE 381, 382	Elements of Electrical Energy Engineering 1 and 2	6
EE 441	Communication Systems and Components	4
EE 474	Linear Control Systems	3
EE 491	Creative Problem Solving	3
EE 320, 330, 340, 420, 430, 440, 450	Electrical Engineering Laboratories	7
MS or STA	Mathematics or Statistics Elective	3
ME 360	Thermodynamics	5
ESM 304, 305	Engineering Mechanics 1 and 2	10°°
	Technical Electives	29
	Non-Technical Electives	9
	Total Required Upper Division Credits	106
	Total Program	202

°These courses must be taken in the lower division to satisfy the 10 credit department requirement.

°°It is possible to substitute ESM 301, 302 and 303 or ESM 304 and MTL 310 for ESM 304, 305.

The technical electives must be chosen to satisfy the requirements of one of the following programs:

(1) Computer Science
(2) Communication Theory
(3) Electronics
(4) Electric Energy Engineering
(5) Biomedical Engineering; and
(6) Systems

Within each of these programs there is a core of "specified electives" with the remainder of the courses to be chosen by the student from an approved list. A student should consult the adviser of the particular program in which he is interested at an early date.

ENGINEERING SCIENCE AND MECHANICS

The continually increasing level of sophistication and complexity of engineering technology and the interdisciplinary nature of most of today's major engineering problems have led to a critical need for men thoroughly and broadly trained in engineering and the physical and social sciences who can contribute to the solution of contemporary complex engineering problems. Based upon a broad foundation of science, engineering and the humanities, the Engineering Science Program is designed to educate engineers capable of becoming leaders in the development of the advanced interdisciplinary technological projects of tomorrow.

One of the strongest features of the Engineering Science Program is the flexibility it offers the graduate to work in newly developing areas of engineering. It should be realized that much contemporary engineering technology will be obsolete within a decade, and that much of what the engineer should know at the end of that decade has not yet been discovered. The Engineering Science Program, by emphasizing the fundamentals of mathematics, physics, chemistry, thermodynamics, electrical phenomena, mechanics of solids and fluids, and materials science, renders the graduate the opportunity of remaining in the forefront of current developments

throughout his career, inasmuch as all technological advances will be based upon fundamentals of these fields.

Undergraduate Program

The curriculum leading to the degree of Bachelor of Science in Engineering Science consists of a core of courses which provide a broad and basic background in mathematics, physics, chemistry, engineering science and design, humanities and social science. The remainder of the student's program consists of a large number of electives to be chosen by the student together with his individual faculty adviser to form a coherent group of courses directed toward a clearly defined objective. The exact content of this group of courses is determined by the student's career objectives.

Due to the active and diverse research programs currently being conducted in this department, our students have a unique opportunity to obtain experience in scientific investigation.

Areas of Concentration

Broadly speaking, the student has a choice of three areas of concentration. These areas are the physical engineering sciences, the biological engineering sciences, and engineering analysis. A student concentrating on the physical engineering sciences might emphasize such subjects as engineering materials, behavior of solid structures, fluids, heat transfer, electronics and instrumentation. A student concentrating on biological engineering sciences would be concerned with various aspects of the life sciences. Specific orientation toward medical and health related sciences, such as bacteriology, biochemistry, radio biology, or organic chemistry might be selected. A student concentrating on engineering analysis would direct his efforts toward techniques of applied mathematics, such as the application of computers to the solution of advanced engineering problems. In addition to more traditional subjects, possible areas of concentration include pre-medical, coastal, oceanographic, and environmental engineering and other interdisciplinary areas.

Graduate Programs

Subsequent to receiving the B.S. degree, many engineering science graduates are employed by various industrial organizations and governmental agencies. However, as in the case of all other branches of engineering, due to the increasingly advanced level of engineering technology, graduate studies are of considerable value. The Department of Engineering Science and Mechanics offers courses leading to the degrees of Master of Engineering, Master of Science in Engineering, and Doctor of Philosophy in the areas of physical engineering sciences and engineering analysis. It should be noted, however, that students who complete the undergraduate curriculum are not restricted to pursuing graduate studies in this department but could readily continue in other departments of their choice, such as Aerospace Engineering, Electrical Engineering, Physics, Mechanical Engineering or Mathematics.

The Engineering Science Program is also an excellent preparation for careers in non-engineering fields which are nevertheless heavily dependent upon a strong background in technology. By taking advantage of the flexibility inherent in this program, students with particular interest in the impact of technology upon contemporary society may choose their electives to prepare themselves for graduate study in the social or political sciences, law, and business as well as engineering and the physical sciences.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN ENGINEERING SCIENCE

Courses			*Credits*
Pre-Engineering Program			96
EE	301	Introduction to Electrical Engineering	5
EE	320	Electrical Engineering Laboratory 1	1
EE	321	Fundamentals of Electron Devices	3
EE	322	Electronics 1	5
EE	331	Circuits 1	3
EE	352	Electromagnetic Fields 1	4
EGR	183	Engineering Graphics 1	2*
ESM	304	Engineering Mechanics 1	5*
ESM	305	Engineering Mechanics 2	5
ESM	311	Fluid Mechanics	4
ESM	421	Engineering Science 1	4
ESM	422	Engineering Science 2	4
ESM	423	Engineering Science 3	4
ESM	501	Engineering Design 1	4
ESM	502	Engineering Design 2	4
ISE	351	Numerical Techniques	2
MTL	300	Materials 1 or	
MTL	310	Electrical Properties of Materials	4
PS	340	Modern Physics 1	3*
Mechanics Electives			8
Thermodynamics and/or Heat Transfer Electives			5
General Electives			37**
Total Quarter Hours			202

* This course is part of the departmental requirement in the Pre-Engineering Program.

** The 37 hours of General Electives shall include a minimum of 10 hours of Humanities and/or Social Science and a minimum of 10 hours of technical courses. Subject to this restriction, the student may choose his electives from courses offered *throughout the university,* provided they form a coherent group of courses directed toward a clearly defined objective and are approved by the student's departmental counselor.

ENVIRONMENTAL ENGINEERING

Environmental Engineering is a rapidly developing field in which the application of biological and engineering principles is used to protect and preserve man's health and well-being through the control of his environment. Initiallv concerned only with water resources and the treatment or protection of drinking water supplies, the field first became known as Sanitary Engineering. Now, since it embraces the broad field of the general environment, including air, food, shelter, radiological health, transportation and accident prevention, as well as water, the term Environmental Engineering is preferred.

During recent years, there has been such an unprecedented demand for environmental engineers that there are many more positions open than there are properly qualified men to fill them. It has been estimated that the number of engineers employed in health departments alone will have to be more than doubled to supply the present need. Increasing activities in many applications of nuclear energy are demanding special training of the environmental engineer. Hazards and wastes from research, reactor operation, radiological procedures and tracer techniques are problems which are properly the concern of these engineers and require more qualified persons than are presently available.

More and more industries are now using the varied services of environmental engineers to good advantage. The growing importance of atmospheric pollution problems has led many industries to give increased attention to this phase of waste disposal. Environmental engineers are being called upon by industry to apply their special knowledge in conducting surveys and formulating abatement programs which will not merely transfer the pollution to streams.

The reasons for this expanding field of opportunity are due largely to the impact of advancing technology on modern community living. With each new problem, there has been a period of transition during which the engineer has been called upon to broaden his activities to keep pace with progress and new developments in environmental engineering and public health.

This process of evolution has manifested itself in so many different aspects of environmental health that environmental engineering has become one of the broadest and most challenging of all fields of engineering. Advances in other branches of engineering create more demands for environmental engineers. Every new manufacturing plant, every new chemical industry, new improvements in nuclear science and in transportation—all increase the number and magnitude of problems for the environmental engineer to solve.

But because the domain of the environmental engineer is so exceedingly complex, of necessity he must interact professionally with specialists in a wide variety of disciplines including the medical and mathematical sciences, law, economics, and political science. This is particularly true of the environmental engineer who specializes in water resources management, a field which brings the modern analytical tools of systems engineering and operations research to bear upon planning and managing the nation's rivers and estuaries. Graduate students in non-engineering fields are encouraged to select from among the environmental engineering course offerings and, when suitable, to undertake doctoral research at the interface between environmental engineering and their major field.

Degree Programs: The Department of Environmental Engineering offers the following degrees: Master of Engineering, Master of Science in Engineering, the Engineer Degree and Doctor of Philosophy.

INDUSTRIAL AND SYSTEMS ENGINEERING

The rapid growth and complexity of industry in the United States and the Southeast in particular have created unusual opportunity for Industrial Engineers and Systems Engineers. The advent of automation and the emphasis on increased productivity coupled with higher levels of systems sophistication are providing impetus to the demand for the engineering graduate with a broad interdisciplinary background.

The curriculum in industrial engineering prepares the student for industrial practice in such areas as product design, process design, plant operation, production control, quality control, facilities planning, work system analysis and evaluation, and economic analysis of operational systems.

The department offers an undergraduate program in systems engineering which emphasizes the integration of knowledge and technology from the engineering, biological, and physical sciences to carry out the processes of description, analysis, synthesis, and optimization in both the industrial and non-industrial setting. The Systems Engineer learns to define problems from a broad perspective in which the contributions of individual components to a total mission is clearly seen.

Both the Industrial Engineer and the Systems Engineer are concerned with the use of engineering principles in the solution of problems encountered in environments and situations where a quantitative basis for decision making is desirable. Such decision making requires the application of the tools of economics, operations research, statistics, mathematics, and engineering analysis, with dependence on the computer.

Depending upon his interest, the student may pursue a major program in industrial engineering or in systems engineering. These major programs offer the required flexibility to meet the diversified demands of all industry and graduate schools. The industrial engineering program prepares the student for professional engineering practice while the systems program further prepares the engineer to carry out analysis and design of large scale operations requiring diversified inputs. Both programs will allow the interested students to prepare for graduate study.

Degree Programs: The Industrial and Systems Engineering Department offers the following degrees: Bachelor of Science in Industrial Engineering, Bachelor of Science in Systems Engineering, Master of Engineering, Master of Science in Engineering, The Engineer Degree, and Doctor of Philosophy.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN INDUSTRIAL ENGINEERING

Upon satisfactory completion of the pre-engineering program, the following courses constitute the requirements for the degree of Bachelor of Science in Industrial Engineering.

Courses	*Credits*
Engineering College Core Program (34 credits minimum)	
Particle, Rigid and Deformable Body Mechanics	10 (minimum)
ESM 304, 305 Engineering Mechanics 1 and 2	
Electrical Circuits, Electronics, Etc.	5 (minimum)
EE 301 Introduction to Electrical Engineering	
Thermodynamics, Heat Transfer, Fluid Flow	3 (minimum)
ME 360 Thermodynamics	(5)
or CHE 333 Chemical Engineering Thermodynamics 1	(3)
or ESM 311 Fluid Mechanics	(5)
Materials, Physical and Chemical Properties	3 (minimum)
MTL 300 Materials 1	(4)
or CHE 353 Materials of Engineering	(3)
Computer Sciences	
°ISE 351 Numerical Techniques	2
ISE 357 Analog Computer Principles	2
ISE 453 Industrial Systems Simulation	3
An elective course restricted to one of the five areas above to total a minimum of 34 credits (including ISE 350)	4 (maximum)

Industrial Engineering Core Program

Course	*Credits*
Pre-engineering Program (Net from Lower Div.)	86
ATG 201 Elementary Financial Accounting	5
°EGR 193 Engineering Graphics	3
ES 203, 204 Basic Economics	6
STA 440, 441, 442 Mathematical Statistics 1, 2, and 3	9
ME 382 Manufacturing Processes	4
°ISE 301 Introduction to Industrial and Systems Engineering	2
ISE 330 Work Design	3
°ISE 401 Matrix Methods in Systems Engineering	3
ISE 402 Transform Methods in Systems Engineering	3
ISE 420 Engineering Economy	3
ISE 432 Production and Inventory Control Systems	4
ISE 433 Facilities Planning	3
ISE 434 Production Systems Analysis and Design	3
ISE 440 Human Engineering	3
ISE 452 Industrial Quality Control	3
ISE 470, 471 Operations Research	6
ISE 490 Seminar	1
Technical Electives	11
Non-technical Electives	9
Total Quarter Hours	202

° Courses EGR 193, ISE 301, ISE 351 and ISE 401 should be taken as part of the 96 credits in the lower division pre-engineering program. Prospective junior college transfers should take the equivalent of 6 quarter credits in basic economics and/or 5 quarter credits of elementary financial and cost accounting if the designated lower division courses are not available.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN SYSTEMS ENGINEERING

The following courses are required for the degree of Bachelor of Science in Systems Engineering as part of the pre-engineering program.

Courses		*Credits*
EGR 193	Engineering Graphics	3
ISE 301	Introduction to Industrial and Systems Engineering	2
ISE 351	Numerical Techniques	2
ISE 401	Matrix Methods in Systems Engineering	3
	Total Hours	10

Upon satisfactory completion of the pre-engineering program the following courses listed alphabetically constitute the requirements for the degree of Bachelor of Science in Systems Engineering.

Courses		*Credits*
CHE 353	Materials of Engineering	3
EE 301	Introduction to Electrical Engineering	5
EE 474	Linear Control Systems	3
ESM 304, 305	Engineering Mechanics 1 and 2	10
ISE 357	Analog Computer Principles	2
ISE 402	Transform Methods in Systems Engineering	3
ISE 410	Inventory Systems	3
ISE 420	Engineering Economy	3
ISE 421	Economic Decision Models	3
ISE 440	Human Engineering	3
ISE 452	Industrial Quality Control	3
ISE 453	Industrial Systems Simulation	3
ISE 470, 471	Operations Research 1 and 2	6
ISE 480	Stochastic Systems	3
ISE 481	Systems Design	3
ISE 490	Industrial and Systems Engineering Seminar	1
ISE 551	Digital Computer Techniques 1	3
ISE 562	Reliability Engineering	3
MS 501	Intermediate Differential Equations for Engineers and Physical Scientists	3
ME 360	Thermodynamics 1	5
STA 440, 441, 442	Mathematical Statistics 1, 2 and 3	9
Restricted Technical Electives		6
Technical Electives		12
Non-Technical Electives		8
	Total Hours	106

RESTRICTED TECHNICAL ELECTIVES

The student must choose one of the following pairs of courses to satisfy the restricted technical elective.

Aerospace Engineering
- ASE 302 Aerospace Analysis 2
- ASE 303 Aerospace Analysis 3

Environmental Engineering
- CE 450 Water Supply Engineering
- CE 451 Sewerage

Chemical Engineering
- CHE 343 Transport Phenomena
- CHE 345 Interfacial Transport Phenomena

Economics
- ES 301 National Income Determination and Policy
- ES 302 Prices and Markets
- or
- ES 661 Econometric Methods 1
- ES 662 Econometric Methods 2

Electrical Engineering
- EE 321 Fundamental Electron Devices
- EE 331 Circuits 1
- or
- EE 570 Control Systems Theory and Practice
- EE 571 Synthesis of Linear Control

Industrial and Systems Engineering
- ISE 550 Computer Programming Systems
- ISE 552 Digital Computer Techniques 2
- or
- ISE 557 Analog Simulation Techniques
- ISE 558 Hybrid Computer Techniques

Mathematics
- MS 541 Modern Analysis 1
- MS 542 Modern Analysis 2

Mechanical Engineering
- ME 460 Aircraft Propulsion

ME 461 Mechanical Propulsion Systems 2

Nuclear Engineering

NES 401 Introduction to Nuclear Engineering 1

NES 402 Introduction to Nuclear Engineering 2

Statistics

STA 525 Design and Analysis of Experiments 1

STA 526 Design and Analysis of Experiments 2

or

STA 610 Introduction to Theoretical Statistics 1

STA 611 Introduction to Theoretical Statistics 2

MECHANICAL ENGINEERING

The broad scope of Mechanical Engineering makes it possible for a student pursuing a degree in this field to prepare himself for a wide variety of engineering careers. The core of the curriculum in Mechanical Engineering is centered upon the fundamentals of scientific and mathematical logic. Individual programs are available wherein a student may develop specialized interests in the engineering aspects of heat, work, motion and energy conversion.

Degree Programs: The Mechanical Engineering Department offers the following degrees: Bachelor of Science in Mechanical Engineering, Master of Engineering, Master of Science in Engineering, Engineer Degree, and Doctor of Philosophy.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING

The following list of courses are those that must be completed by upper division students to become eligible for the Bachelor's degree in Mechanical Engineering:

Pre-Engineering Requirements

EGR	193	Engineering Graphics	3
EGR	194	Design Processes in Engineering	2
ESM	304	Engineering Mechanics 1	5
			10

Upper Division Requirements

EE	301	Introduction to Electrical Engineering	5
EE	381	Basic Electro-Mech. Energy Conversion	3
EE	321	Fundamentals of Electron Devices	3
EE	320	Electrical Engineering Laboratory 1	1
ESM	305	Engineering Mechanics 2	5
STA	300	Engineering Statistics	3
MTL	300	Materials	4
ME	320	Instruments and Measurements Laboratory	2
ME	380	Mechanisms and Kinematics	4
ME	360	Thermodynamics 1	5
ME	361	Thermodynamics 2	4
ME	362	Thermodynamics Laboratory	1
ME	381	Machine Dynamics	4
ME	382	Manufacturing Processes	4
ME	401	Professional Orientation	1
ME	402	Seminar	1
ME	430	Heat and Mass Transfer 1	3
ME	431	Heat and Mass Transfer 2	3
ME	445	Mechanical Engineering Analysis	3
ESM	311	Fluid Mechanics	4
ME	450	Fluid Dynamics	3
ME	480	Mechanical Vibrations	4
ME	482	Machine Analysis and Design 1	3
ME	483	Machine Analysis and Design 2	3
Non-Technical Electives			8
Technical Electives			23
		Upper Division Total	107
		Lower Division Total	96
		Total hours required	203

TYPICAL TECHNICAL ELECTIVES

Students enrolled in Mechanical Engineering are required to take 23 quarter hours of technical electives. The following is a partial listing that represents a cross-section of acceptable technical electives. A department counselor is available to assist in the planning of a logical and interesting elective program.

ME	461	Mechanical Propulsion Systems	3
ME	462	Mechanical Propulsion Systems Laboratory	1
ME	463	Heat Power Engineering	3
ME	464	Heat Power Engineering Laboratory	1
ME	465	Refrigeration and Air Conditioning	3
ME	466	Refrigeration and Air Conditioning Laboratory	1
ME	467	Energy Conversion	3
ME	468	Mechanical Consulting Practice	3
ME	484	Machine Analysis and Design 3	3
EGR	421	Engineering Graphical Analysis	3
ME	560	Statistical Thermodynamics	3
ME	520	Control System Theory	3
ME	591	Gas Turbines and Jet Engines	3
ME	593	Mechanical Design 1	3
ME	594	Mechanical Design 2	3
MS	324	Introduction to Matrix Theory	3
MS	410	Numerical Methods in Linear Algebra	3
MS	411	Numerical Methods in Analysis	3
MS	501	Intermediate Differential Equations for Engineers and Physical Scientists	3
MS	502	Vector Analysis	3
STA	440	Mathematical Statistics 1	3
STA	441	Mathematical Statistics 2	3
PS	340	Modern Physics 1	3
PS	440	Modern Physics 2	3
ASE	301	Aerospace Analysis 1	3
ASE	461	Aerospace Propulsion 1	3
ASE	462	Aerospace Propulsion 2	3
MTL	310	Electrical Properties of Materials	4
NES	551	Nuclear Power Reactors	3

METALLURGICAL AND MATERIALS ENGINEERING

Engineering in all of its branches requires the effective use of materials. The curricula in Metallurgical and Materials Engineering offer preparation in the solving of problems in the development, manufacture, and utilization of metallic and of certain non-metallic materials. Competence arises from a firm understanding of the fundamentals of chemistry, mechanics, solid state physics, and structure of materials. Thus, the Metallurgical and Materials Engineer occupies a unique position between the science and the practice of engineering, which is advantageous in the wide variety of avenues of professional development open to him. Since progress with new engineering concepts is often dependent upon success in advancing the capabilities of materials, he is in constant demand in many segments of industry engaged in production, application, and research on materials and in private engineering practice. The Bachelor's Degree program provides options in metallurgy and ceramics. For the student whose primary interest lies in research, a graduate program leading to the degrees of Master of Science in Engineering and Doctor of Philosophy is provided. The entire offering of courses at both the undergraduate and graduate levels is designed also to furnish electives for engineers in other specialties, who desire a more extensive understanding of materials than is given by the required courses.

Degree Programs: The Metallurgical and Materials Engineering Department offers the following degrees: Bachelor of Science in Metallurgical Engineering, Metals Option and Ceramics Option; Master of Engineering; Master of Science in Engineering; the Engineer Degree, and Doctor of Philosophy.

UNDERGRADUATE CURRICULUM IN METALLURGICAL AND MATERIALS ENGINEERING

For the lower division requirements, see the Pre-Engineering Curriculum. The 10-credit hours departmental requirements in the lower division are:

Course	*Credits*
EGR 193 Engineering Graphics	3
MTL 300 Materials 1	4
STA 330 Engineering Statistics	3
Courses in Other Departments	*Credits*
CHE 343 Transport Phenomena	3
EE 301 Electrical Engineering	5
ESM 304, 305 Engineering Mechanics	10
ISE 351 Numerical Techniques in Systems Engineering	2
ISE 420 Engineering Economy	3
ME 360 Thermodynamics	5
Electives*	12
Courses in the Department of Metallurgical and Materials Engineering	
MTL 401, 402, 403 Materials	9
MTL 450, 451 Process Metallurgy	6
MTL 460 Introduction to Diffraction Theory	3
MTL 470 Seminar in Metallurgical and Materials Engineering	1
MTL 490, 491, 492 Metallurgy Laboratory	3
MTL 510, 511 Electronic Structure and Properties of Matter	6
MTL 522 Selection of Materials	3
MTL 540, 541 Mechanical Metallurgy	7
MTL 550 Chemical Metallurgy	3
MTL 551 Corrosion	3
MTL 560 X-ray and Electron Metallography	4
MTL 582 Physical Ceramics	3
MTL 590, 591 Research in Metallurgy	6
Option Courses**	10

*At least 9 hours of electives should be non-technical.

**Every student must select either of the following 10-credit course sequences to fulfill the option course requirement:

Metals Option	*Credits*
MTL 520 Structure and Properties of Alloys	3
MTL 521 Solid State Processes	3
MTL 542 Metal Forming	4
Total, Metals Option	10
Ceramics Option	
MTL 480 Processes and Properties in Ceramic Materials	4
MTL 580, 581 Physical Ceramics	6
Total, Ceramics Option	10

Summary of Degree Requirements	*Credits*
Pre-Engineering Requirements	96
Upper Division Requirements	
Courses Outside the Department	28
Required Core Courses	57
Option Courses	10
Electives	12
Total, Upper Division	107
Total Minimum Degree Requirements	203

For further information, consult the Counselor for Upper Division students in the Department of Metallurgical and Materials Engineering.

NUCLEAR ENGINEERING SCIENCES

Nuclear Engineering Sciences comprise those fields of science and technology directly concerned with the release, control and utilization of all types of energy from nuclear processes. As such, it includes the design and development of systems for the controlled release of nuclear energy and the application of radiation as well as those underlying fundamentals derived from the basic sciences. Accordingly, the Nuclear Engineering Sciences program has been left flexible enough that the proper choice of electives will allow specialization either in the engineering or scientific aspects of this field. It is anticipated that a substantial number of those enrolled in the Nuclear Engineering Sciences program will pursue graduate work.

Among the special facilities available are a 100 KW training reactor, a 4 MeV Van de Graaff accelerator, an IBM-1800 digital computer for on-line data acquisition and analysis, two analog computers, a hybrid computer facility, three subcritical assemblies, three neutron generators, plasma and MHD research facilities as well as a large amount of specialized nuclear instrumentation.

Degree Programs: The Department of Nuclear Engineering Sciences offers the following degrees: Bachelor of Science in Nuclear Engineering Sciences, Master of Engineering, Master of Science in Engineering, Engineer, and Doctor of Philosophy.

UNDERGRADUATE CURRICULUM IN NUCLEAR ENGINEERING SCIENCES

For the lower Division requirements refer to the Pre-Engineering Curriculum. Freshman students considering Nuclear Engineering Sciences as a career are urged to take NES 100—Nuclear Engineering Sciences Problems 1.

CURRICULUM LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN NUCLEAR ENGINEERING SCIENCES

Courses	*Credits*
Pre-Engineering Program	96
EGR 193 Engineering Graphics 1	3*
MTL 300 Materials	4*
PS 340 Modern Physics 1	3*
EE 301 Introduction to Electrical Engineering	5
EE 320 Electrical Engineering Laboratory 1	1
EE 321 Fundamentals of Electron Devices	3
ESM 301 Engineering Mechanics-Statics	4
ESM 303 Strength of Materials	4
ESM 421 Engineering Sciences 1	4
ESM 422 Engineering Sciences 2	4
ISE 351 Numerical Techniques	2
ME 360 Thermodynamics	5
NES 401 Nuclear Engineering 1	4
NES 402 Nuclear Engineering 2	4
NES 403 Nuclear Engineering 3	4
NES 404 Nuclear Engineering Laboratory 1	4
NES 405 Thermodynamics, Heat & Mass Transfer in Nuclear Systems	4

*This course is part of the department requirements in the Pre-Engineering Program.

Courses	*Credits*
NES 430 Applications of Nuclear Radiation & Energy 1	4
NES 470 Plasma Engineering	4
NES 540 Nuclear Radiation Detection & Instrumentation	4
NES 551 Power Reactors	4
PS 460 Nuclear Physics	3
Nontechnical Electives	8
Engineering Science Electives	14
Design, or Technical Electives	13
Total	202

RECOMMENDED ENGINEERING SCIENCE ELECTIVES

Courses

ASE 302 Aerospace Analysis 2
CHE 343 Transport Phenomena
CHE 333 Chemical Engineering Thermodynamics 1
ESM 423 Engineering Science 3
ESM 513 Introduction to Mechanics of Continua
ESM 520 Fundamental Vibration Analysis
ESM 311 Fluid Mechanics
ESM 302 Engineering Mechanics—Dynamics
ENE 520 Environmental Biology
CE 320 Hydraulics 1
ME 363 Thermodynamics 3
ME 430 Heat and Mass Transfer 1
ME 431 Heat and Mass Transfer 2
ME 450 Fluid Dynamics
MTL 310 Electrical Properties of Materials
MTL 401 Materials 2
MTL 402 Materials 3
MTL 403 Materials 4
MTL 480 Processes and Properties of Ceramic Materials
EGC 541 Tensor Fields and Fluid Dynamics
EE 352 Electromagnetic Fields 1
EE 451 Electromagnetic Fields 2
ME 467 Energy Conversion

It should be noted that the above is not a complete list of acceptable engineering science electives but represents those commonly recommended.

DESIGN OR TECHNICAL ELECTIVES

Students are encouraged to concentrate several technical elective courses in one scientific discipline of their choice in order to achieve solid familiarity with this "minor" field of study. The design or technical electives together with the engineering science electives, chosen in consultation with the departmental counselor, allow specialization in such areas as Nuclear Reactor Technology, Nuclear Chemical Engineering, Nuclear Science, Plasma Engineering, Nuclear Instrumentation, etc.

COLLEGE REGULATIONS

English Requirement.—Responsibility for the correct and effective use of his spoken and written English rests primarily upon the student. Any instructor in the College of Engineering may, at any time, with the approval of the Chairman of his department and the Dean of the College of Engineering, require a student who shows a deficiency in English to complete additional courses, over and above the curriculum requirements for his degree.

All students entering the College of Engineering are required to take an English examination. This examination is to be taken by the student during his first regular quarter of enrollment in the College of Engineering. All undergraduate students are to comply with this requirement. The examination is offered during the first two weeks of classes. Information regarding this examination is available in the office of the Associate Dean of the College.

Students who do not pass this examination in two attempts are required to complete the course EH 302, 3 credits, with a grade of "C" or better. Special sections of this course are offered for engineering students in the Engineering and Industries Building. This becomes a requirement for graduation, and EH 302 is course work over and above the regular course work specified for the degree.

Thesis.—These are not required of candidates for the baccalaureate degree in the College of Engineering. However, exceptional students may be granted permission by the Dean of the College, upon recommendation of the chairman of the department, to undertake a thesis in lieu of required or elective work in the department in which he is enrolled. Not more than six quarter hours will be allowed for such thesis work.

Guidance Examinations.—On admission to the College of Engineering, each student may be required to take an examination in subjects prerequisite to engineering, including English, mathematics and physics. The results of this examination will be made available to his departmental counselor for guidance and for the early scheduling of remedial course work where necessary.

Credit for Special Work.

1) Upon the recommendation of the chairman of the department and the approval of the Dean, a student during his course of study may do practical work under competent supervision in industry. By submitting a satisfactory report, based upon a previously approved outline, and by passing an examination, he may receive college credit not to exceed 5 quarter hours. Such student will register for the departmental course 499 to receive such credit.

2) Where it is determined by the department concerned that an exceptional student may profit by supplementing his regular program of course work in a particular area, the student may register for special problems in his chosen field. The credit for such work should not exceed 9 quarter hours and requires approval of the Dean of the College of Engineeing. To receive such credit, the student must register for departmental course number 498.

A student may not have more than 12 quarter hours in total for work in industry, special problems, and High Honors project.

Elective Credit for Foreign Language Courses.—Foreign language credits may, within the discretion of the department, be credited in fulfillment or partial fulfillment of its requirement for non-technical electives, provided that the student presents at least two quarters of work with a grade of "C" or better in the same

language. In the field of foreign languages *only*, the college makes an exception to its general policy that 100-level courses are not acceptable in fulfillment of demands for electives stipulated in the curriculum.

Average Required for Graduation.—The requirement for graduation with a Bachelor's degree is a composite of "C" or higher in all work required in the Upper Division of the College of Engineering as well as work taken while registered in the College of Engineering.

Maintenance of Academic Standards.—If at any time after admission to the College of Engineering a student's upper division honor point average falls below 2.00 he will be placed on college probation. A student may also be placed on probation if he does not maintain normal academic progress in the program of study in which he is engaged. The section of this catalog on 'Student Regulations' authorizes any college to set its own standards for exclusion of a student who fails or refuses to maintain normal academic progress. It is the policy of the College of Engineering that any undergraduate student who withdraws from the University for the second time will be automatically placed upon college probation which will continue until his graduation. Any student on college probation for this reason who withdraws for a third time from the University will be ineligible for further registration in the College of Engineering. Failure to satisfactorily complete the terms of his probation will result in the ineligibility of the student for further registration in the College of Engineering.

A student who takes a required course for the second time and fails to make a grade of "C" or better in that course must have special permission of the Dean to continue his registration in the College.

Advanced ROTC.—Some engineering students may elect to enroll in the advanced ROTC program offered by the Army and the Air Force. Graduates of these programs are commissioned as second lieutenants as described elsewhere in this catalog.

It is the policy of the Engineers' Council for Professional Development which accredits engineering curricula, that student enrollment in advanced ROTC programs represents a second career objective quite apart from that of professional engineering. Accordingly, advanced courses in Military Science are not acceptable for credit toward a degree in engineering, either as electives, technical or non-technical, or as substitutes for required courses.

Correspondence Courses.—(See Student Regulations—"Degrees and Graduation," Condition 9.)

A student in the College will not be permitted to register for and work on correspondence courses while enrolled in the College unless he has special permission of the Dean of the College and the Registrar. A student on probation must have permission of the Dean to register for correspondence courses when not enrolled in the College. A student who has been suspended will not be permitted to take correspondence courses for credit until the suspension is removed. A grade of "C" or better is required to receive credit for a correspondence course.

Dean's List.—Each quarter there is compiled a Dean's List of those students whose work for the preceding quarter has been of a high order. This recognition is accorded to students in the College of Engineering who:

(a) Have taken a minimum of 14 hours during the quarter;
(b) Have made a 3.0 average during the quarter; and
(c) Have no grade below "C" for the quarter.

HONOR STUDENTS

Honor Student Designation—To be eligible for the designation of Honor Student in the College of Engineering, a student must have earned an honor point average of 3.20 or higher in all work taken of the upper division, must have been registered in the College of Engineering for at least one quarter, and must have earned at the University of Florida a minimum of 16 credit hours of upper division work. Also his academic record, as regards progress and conduct, must be such as to merit the recommendation of his major department. So long as he maintains the necessary requirements he may, as an honor student, be granted special consideration in review of a petition to substitute courses.

Graduation with honors may be accomplished upon completion of all required

work of the major department with the honor point average of 3.20 or higher and upon the recommendation of the major department.

Graduation with High Honors—An Honor Student may be invited to High Honors candidacy under the following conditions

(1) He must have secured an honor point average of at least 3.50 in all work taken of the upper division.

(2) The faculty of his major department must recommend him for invitation to High Honors after review of his record.

When the invitation to participate in High Honors work has been accepted in writing by a student, a High Honors Committee will be appointed by the Dean upon the recommendation of his department chairman. It shall be composed of two members of the faculty of the student's major department and one member of the University faculty selected from some other department. The Committee will determine the nature of the student's High Honors program which may consist of an oral examination, a special High Honors project and thesis, or both. The project with thesis is not normally waived unless the student has an honor point average of 3.80, but this is discretionary with the Committee in exceptional cases. The Committee will consider the student's academic aims in the planning of his program, and will supervise the High Honors project and/or oral examination. The faculty of the major department will make recommendations based upon the Committee's findings when the candidate has satisfied all requirements for graduation with High Honors.

Graduation with High Honors may be accomplished upon completion of all required work of the major department with honor point average of at least 3.50 and upon the recommendation of the major department.

When a high honors project is a part of the program, credit may be obtained by prior registration in courses numbered 498 carrying the appropriate departmental prefix. Not more than a total of twelve credit hours will be allowed for high honors work, special projects, and practical work in industry; and registration for variable credit of one to six hours per quarter will be dependent upon committee recommendation.

INDUSTRIES COOPERATIVE EDUCATION PROGRAM

A number of industries, in cooperation with the College of Engineering have established a cooperative program for engineering education which provides for industrial cooperation in educating the engineering student by providing employment in alternate quarters that are spent in learning techniques and industrial applications under supervision in selected industrial and Government facilities.

Students may apply for the cooperative program during their freshman year by contacting the office of the Dean. Acceptance of the student is based on his academic standing and the availability of a cooperative assignment. Students in the cooperative program will require approximately five years to earn the selected engineering degree. The student normally completes his first and last years of study in residence at the University.

The quarters spent in industry are designed to give the student experience as an employee and are intended to be educational as well as productive. He is required to experience the usual employment procedures of interviews, job assignment, training, etc. He receives a salary commensurate with the assignment and his assignments increase in difficulty with each succeeding industrial period to parallel his academic advancement.

Upon assignment to an industry, the cooperative student becomes a member of a two-man team. He alternates with his partner between industrial assignments and his classroom schedules each quarter. One or the other member of the team is always in an industrial assignment so as to give the cooperating industry a continuity in the program.

Applications also may be made by men in industry who wish to complete their Engineering College course work and need credit for one year or more of college work to earn a degree.

Industrial organizations wishing to cooperate in this plan may communicate with the Dean's office.

Students will register immediately prior to each industrial phase of the program with the College of Engineering for participation in the Industries Cooperative Education Program.

COMPUTER AND INFORMATION SCIENCE

Undergraduate students desiring to enter the field of computer and information science should consult with their counselors for modification of their prescribed curricula in order to secure subject material. Particular attention should be called to the course sequence EGC 311, 312, 321 and 322. Also, other courses are available to provide the computer basics needed for each engineering discipline.

For further information, the student should contact Professor R. A. Ramey, Chairman, Computer and Information Science Steering Committee.

LIFE SCIENCES, BIOMEDICAL ENGINEERING AND PRE-MEDICAL PROGRAMS

There is a growing need in our society for individuals trained in both engineering and the life sciences. Qualified individuals so trained will probably find a diversity of career paths open to them. This preparation particularly suits a candidate for admission to medical school, but it qualifies him equally to pursue an engineering career in the specialized fields of bioengineering or environmental engineering, or continue his education with graduate study in biomedical engineering, or the life sciences.

The departments of Aerospace, Agricultural, Chemical, Electrical, Engineering Sciences, Systems, Mechanical, Metallurgical, and Nuclear Engineering, after consultation with the College of Medicine, have established special programs in this field. In general, these are of the same length as the conventional curriculum, and were achieved by substituting for groupings of electives twelve credits in organic chemistry and eleven in zoology. The student who is interested in these programs should consult his engineering department advisor at the earliest practicable date, since certain departments expect the student to begin his work in these specialized areas early in his undergraduate career.

FLORIDA ENGINEERING AND INDUSTRIAL EXPERIMENT STATION

Although the Florida Engineering and Industrial Experiment Station has developed a national and international reputation for excellence in research, its most important contributions are: (1) prosecution of research for the benefit of the State's industries, health, welfare, and public service, and (2) the intangible values offered to students participating in research projects while attaining their education.

Such opportunities, when grasped, bring the students into direct contact with the research specialists who constitute the faculty—the same faculty serve both the Station and the College. Not only do the students assist the professors working on specific research problems, but in many cases they make a direct contribution, on their own initiative, in meeting the great challenges of this era through research. The students thereby profit immeasurably from their association with the engineers engaged in research projects and from the opportunity to participate in using the principles of engineering for the solution of fundamental and applied problems.

All facilities of the College are available for instructional and research purposes. Graduate students may select fundamental problems under investigation in the research projects of the Station for the subject matter of theses that are required for the graduate degrees in engineering.

Whenever feasible, students are given an opportunity to observe and participate in research projects of the Station. Students who may benefit by additional laboratory work, and who have the necessary educational experience, may be given special permission to carry on individual experimentation in research.

GENESYS

This is an acronym for Graduate Engineering Education System. It consists of a closed-circuit television system, provided with a talk-back feature for student participation, regardless of his location. There are both northbound and southbound channels connecting satellite campuses at Daytona Beach, Orlando, Port Canaveral, and West Palm Beach with the Gainesville campus. Full-scale courses are offered and lectures may originate and be transmitted from studios located at any of these sites except West Palm Beach. Although primarily designed to meet the need of engineers in industry who could not attend courses in Gainesville, graduate students pursuing advanced degrees in residence in Gainesville enroll in many of these courses. A detailed brochure on this system and its offerings may be obtained by writing the Dean of Engineering.

MASTER OF ENGINEERING DEGREE

See the *Graduate School Catalog.*

The Master of Engineering degree is designed to meet the needs of advanced technical training by the employees in Florida Industry and those students who wish additional technical training before entering industry rather than those interested primarily in research or teaching.

It is a non-thesis degree that is offered by several departments, both on and off campus.

MASTER OF SCIENCE IN ENGINEERING DEGREE

See the *Graduate School Catalog.*

All instructional departments in the College of Engineering offer graduate work leading to the degree of Master of Science in Engineering.

There is considerable demand for engineers with graduate degrees, particularly in research, design and development work, and teaching. The facilities of the College, including the Florida Engineering and Industrial Experiment Station, are exceptionally well adapted for graduate study. Any undergraduate student whose scholastic average is well above average is urged to consider seriously the possibility of doing graduate work. The Dean and the various members of the staff of the College will be happy to confer with students in regard to graduate study.

ENGINEER DEGREE

See the *Graduate School Catalog.*

Industry has found that engineers holding either the master's or doctor's degree contribute significantly in highly sophisticated operational and developmental projects and missions which require engineering teams with an unusually high level of technical competence. Many of the projects and problems require education beyond the master's level especially for those engineers who received their master's several years ago.

To meet the need of those engineers who need additional technical depth and diversification in their education beyond the master's degree the College of Engineering offers the degree of Engineer.

This degree requires a minimum of 45 quarter hours of graduate work beyond the master's degree and thus falls midway between the master's and Ph.D. in the amount of work required. No minimum residence requirement is stipulated. It is not to be considered as a partial requirement toward the Ph.D degree. The students' objective after the master's should be the Ph.D. *or* the Engineer degree.

DOCTOR OF PHILOSOPHY DEGREE

The Doctor of Philosophy Degree is awarded for major work in Aerospace Engineering, Chemical Engineering, Civil Engineering, Electrical Engineering, En-

gineering Mechanics, Environmental Engineering Sciences, Mechanical Engineering, Metallurgical Engineering, Nuclear Engineering, and Systems Engineering (Operations Research).

The general requirements for this degree are included in this catalog under The Graduate School. Further details may be secured from the Dean of the Graduate School or the Dean of the College of Engineering.

School of Forestry

A Unit of the Institute of Food and Agricultural Sciences

GENERAL STATEMENT

The primary objective of the School of Forestry is to train men and women for professional careers in the various areas of specialization in forestry and in the closely related fields of wildlife ecology and forest products technology. Special emphasis is placed on instilling in students an aggressive and scientific attitude toward the problems to be met after graduation.

All work offered in the School ot Forestry meets the highest requirements of forestry instruction. Curriculum I meets the accreditation standards of the Society of American Foresters and Curricula II and III follow the recommendations of prominent educators and professional workers in the respective fields concerned.

Programs of Study

All three curricula of the School are designed to provide students with an education of sufficient breadth to qualify them for advancement to positions of responsibility and leadership. In addition to the arts, humanities and social studies offered in the University College, students receive thorough training in the basic sciences and in essential phases of their chosen field. Instruction is offered in three major professional areas. All lead to the degree Bachelor of Science in Forestry. The transcripts of those who complete Curriculum II, "WILDLIFE ECOLOGY" or Curriculum III, "FOREST PRODUCTS," will be so identified.

I. FORESTRY

This curriculum is designed for students whose primary interests lie in the management of forests for one or several of their multiple uses, such as: the growing of crops of timber and related raw materials for industry, the production of wildlife and the ranging of livestock, outdoor recreation, and the protection of watersheds and the regulation of stream flow. The curriculum prescribes a core of courses needed by a professional in each of these areas of work. It includes a proper grounding in the fundamental sciences; a thorough study of the factors affecting tree growth, forest regulation and timber stand development; and a careful consideration of economic and business principles. In addition, through appropriate electives the student can explore one of the following specialized fields: *Timber Management, Industrial Forestry, Forest Recreation,* or *Forest Wildlife Management.* If he prefers not to pursue a special interest, he may use the elective hours to broaden his general gackground. Most graduates find employment with land management divisions of various wood-using industries or with the several state and federal forestry, recreation, and conservation agencies.

II. WILDLIFE ECOLOGY

This curriculum, consisting of a combination of required and elective credits, permits students to specialize in one of several aspects pertaining to the broad field of wildlife ecology and research. Required credits include subjects of fundamental importance to understanding basic principles governing the abundance, distribution, and ecology of all forms of wild birds and mammals, including those considered as game species. Elective credits may be used for concentrating in such fields as *Wildlife Research, Wildlife Management, Conservation Law Enforcement,* or *Information and Education.* Qualified students are urged to continue their college work through one of the advanced degrees. Students find employment with various federal or state agencies or with different types of private organizations.

III. FOREST PRODUCTS

This curriculum is designed for students interested in careers dealing with the conversion of timber resources into wood, fiber and chemical products; it also extends into the marketing and utilization of these products. Mathematics,

physics, chemistry, botany, economics and either accounting or engineering graphics are common requirements for all forest products students. Professional courses in forestry, wood anatomy and properties, forest products harvesting and utilization are also essential. A required optional sequence of either engineering, business or science round out the student's basic education for several different fields of work or graduate study. Options offered include *Harvesting, Forest Products Commerce* and *Pre-Wood Science*. Approximately 20 to 25 elective credits are available to permit students to further their specialization in the scientific, technological or business aspects of forest products processing and marketing. Wood-using industries, research laboratories, material and equipment companies, railroads, utility companies and others continually seek men who have had forest products training.

Facilities for Instruction and Research

The School of Forestry has varied facilities for carrying out its instructional and research objectives. Two forests are available for field laboratories, demonstration and research work. The University of Florida Conservation Reserve, consisting of 2,500 acres of diversified forest lands is located in Putnam County, Florida. The Austin Cary Memorial Demonstration Forest, consisting of 2,083 acres of flatwoods forest land located 8 miles northeast of Gainesville, is used as a field laboratory and demonstration and experimental forest where the student receives practical field experience.

Woodland holdings, in excess of 250,000 acres, of five large pulp and paper companies and several smaller private forestry operations located within a radius of 20 miles of the campus are available for laboratory use.

The School of Forestry has a nursery and a small sawmill with necessary equipment located on the School forest. A dry kiln, wood-preservation laboratory, a wildlife ecology laboratory, and a forest tree physiology-genetics laboratory and green houses are located on the University Campus.

There are several forest products industries located in the vicinity of Gainesville, namely: a wood-preservation plant, pole and cross-tie yard, southern pine plywood mill, charcoal briquetting plant, box and crate factory, and several sawmills. Visits to these industries supplement the student's training in wood processing and wood use. The production and manufacture of pulp and paper are studied on cutting sites and in the mills. Two of the three National Forests of the State are less than fifty miles distant. These forests are visited by classes in different fields of work.

Forestry publications are housed in the various units of the university library system. This is a comprehensive collection which is kept current by frequent additions. It includes all important serials as well as the publications of all major forest research organizations.

REQUIREMENTS FOR ADMISSION

(a) Graduation from the University College or its equivalent as determined by the Board of University Examiners, (b) recommendation of the Board of University Examiners, and (c) approval of the Director of the School of Forestry. Students should have successfully completed the pre-professional and general educational courses listed under Forestry, Wildlife or Forest Products in the University College section of the catalog. Transfer students from Junior Colleges or other colleges and universities should have completed similar courses of study. Those who have not completed their pre-professional requirements or who have special hour-credit problems will have their transcripts evaluated by the Registrar and the School of Forestry. Probational admission to the School may be approved by the Director in such cases. However, all deficiencies in pre-professional courses must be made up prior to graduation.

When students enter the university, they should contact the Director of the School of Forestry for guidance in planning their work.

REQUIREMENTS FOR GRADUATION

The degree Bachelor of Science in Forestry is awarded to students who have completed the requirements of any of the three curricula.

GRADUATION WITH HONORS

To graduate with honors, students in the School of Forestry are considered separately from those in the College of Agriculture. For requirements see the general statement for graduation with honors, College of Agriculture.

CURRICULUM I

FORESTRY

Junior Year		*Credits*
FY 218	Wood Anatomy and Identification	3
FY 220	Intro. to Forestry	3
FY 222	Forest Drawing	1
FY 301	Lectures in Basic Plant Pathology	2
FY 313	Laboratory in For. Pathology	3
FY 321	Intro. For. Surveying	5
FY 326	Dendrology	4
FY 327	For. Resource Meas. 1	3
FY 328	For. Resource Meas. Lab	3
FY 346	Forest Photogrammetry	4
FY 353	Princ. Wildlife Ecol.	4
BTY 310	Plant Physiology	5
SLS 330	General Soils	5
STA 320	Statistics	4
*Electives		6
		55

Senior Year		*Credits*
EH 403	Report Writing or	
JM 201	Writing for Mass Comm.	4
FY 306	Forest Fire Control	3
FY 318	For. Prod. Utiliz.	3
FY 329	For. Resource Meas. 2	4
FY 403	Silvics-Silviculture	5
FY 410	Forest Policy	4
FY 416	Princ. Forest Mgmt.	4
FY 420	Forest Economics	4
EY 351	Forest Entomology	4
*Electives		21
		56

*Appropriate courses approved by the assigned counselor to provide some specialized training in one of the following fields: Timber Management, Forest Recreation, Forest Wildlife Management, or Industrial Forestry. When no specialty is desired, courses which will generally broaden the student's background for a successful career will be selected in consultation with the assigned counselor.

CURRICULUM II

WILDLIFE ECOLOGY

Junior Year		*Credits*
FY 220	Intro. to Forestry	3
FY 326	Dendrology	4
FY 327	For. Resources Meas. 1	3
FY 353	Princ. Wildlife Ecology	4
FY 354	Tech. Wildlife Ecology	4
FY 346	Forest Photogrammetry	4
EH 403	Report Writing	4
GPY 331	Conserv. Nat. Resources	3
SLS 330	General Soils	5
STA 320	Statistics	4
ZY 306	Vertebrate Zoology 1	4
ZY 307	Vertebrate Zoology 2	4
VY 321	Anat. & Physiology	5
BTY 342	Local Flora	3
Electives		11
		65

Senior Year		*Credits*
FY 410	Forest Policy	4
FY 416	Princ. Forest Mgmt.	4
FY 434	Ecol. Upland Wildlife (or	
FY 436	Waterfowl Ecology)	4(5)
FY 450	Princ. For. Recreation	3
AY 362	Genetics	4
BTY 501	Plant Ecology	5
ZY 505	General Ecology	5
ISE 350	Digital Computer Program	2
Electives		15(14)
		46

CURRICULUM III

FOREST PRODUCTS

Junior Year		*Credits*
FY 218	Wood Anatomy and Identification	3
FY 220	Intro. to Forestry	3
FY 321	Intro. Forest Surveying	5
FY 326	Dendrology	4
FY 327	Forest Resource Measurements 1	3
FY 328	Forest Resource Measurements Laboratory	3
ES 201, 202 or ES 203, 204, 205	Basic Economics	10-9
ISE 350	Digital Computer Programming	2
STA 320	Statistics	4
*Option Requirements		8-15
**Electives		4-14
		55

Senior Year		*Credits*
EH 403	Report Writing	4
FY 318	Forest Products Utilization	3
FY 320	Logging and Milling	4
FY 447	Logging and Milling Practice	5
EY 351	Forest Entomology	4
FY 301	Lectures in Basic Plant Pathology	2
*Option Requirements		11-21
**Electives		13-23
		56

*Course requirements in option selected:

Harvesting: FY 306—Forest Fire Control; FY 346—Forest Photogrammetry; MS 304—Calculus; ESM 301-302—Mechanics-Statics-Dynamics; ISE 301—Industrial Systems Engineering; ISE 330—Work Design.

Commerce: FY 222—Forest Drawing; ES 301—National Income Policy; ES 302—Prices and Markets; ES 321—Money and Banking; FI 322—Financial Institutions; FI 326—Business Finance; MGT 310—Principles of Management; MGT 401—Business Law or MKG 331—Principles of Marketing.

Pre-Wood Science: BTY 310—Plant Physiology; CY 362-363 or CY 371-375—Organic Chemistry; MS 304—Calculus; ESM 301—Mechanics-Statics; ESM 303—Strength of Materials; FY 509—Wood Structure and Properties.

**Elective courses which will broaden the student's background for a particular field will be selected in consultation with an assigned counselor.

TRANSFER OF CREDIT FROM A RECOGNIZED RANGER SCHOOL

Graduates of a recognized Forest Ranger School, upon admission to the University of Florida, may apply for and receive credit for the following required courses, provided they make a satisfactory score in each subject on an oral and/or written examination administered by the School of Forestry during their first quarter in residence.

		Credits
FY 220	Introduction to Forestry	3
FY 222	Forest Drawing	1
FY 326	Dendrology	4
FY 306	Forest Fire Control	3
FY 321	Introduction to Forest Surveying	5
FY 328	For. Resources Meas. Lab	3
	Total	19

MASTER OF SCIENCE IN FORESTRY

Courses are offered in the Graduate School leading to the degree, Master of Science in Forestry.

For requirements for the Master's degree, see the Graduate School Catalog.

College of Health Related Professions

GENERAL STATEMENT

The College of Health Related Professions, an academic unit of The J. Hillis Miller Health Center, provides an opportunity to train needed personnel representing various health careers. This College offers professional curricula leading to undergraduate degrees in physical therapy, occupational therapy, and medical technology; a Master's degree in rehabilitation counseling; and a graduate program in health and hospital administration in cooperation with the College of Business Administration. Specialized courses and intern and practicum experiences for the training of clinical psychologists are provided by the staff of the Department of Clinical Psychology. The Department of Communicative Disorders provides clinical and research opportunities for advanced students in speech pathology and audiology in the College of Arts and Sciences. A Rehabilitation Research Institute relates to ongoing research and assists members of the staff and students with research proposals and projects.

Three resources common to all these academic programs are accessibility of patients in the Teaching Hospital and Clinics, availability of staff and facilities of the College of Medicine, and the presence of a wide range of established course offerings to be found in a large university. The effective operation of various medical, hospital, and rehabilitation programs depends upon well trained and properly oriented personnel. The geographic location with the College of Medicine and the College of Nursing strengthens the respective programs of this College by making it possible for those who are to work together to be trained together.

UNDERGRADUATE CURRICULA ADMISSIONS

To be eligible for admission to the College of Health Related Professions, the student is required to have a 2.0 (C) average in all Lower Division courses and to have a 2.0 (C) average in all professional and pre-professional courses within that Lower Division curriculum. These grade averages do not assure acceptance in the College as the student must also have the approval of the Committee on Admissions of the College of Health Related Professions.

Students who do not meet the grade averages stated above may request special consideration by the Committee on Admissions. Such approval may be granted in exceptional cases.

Transfer students must present college credit equivalent to graduation from the University College, as determined by the Board of University Examiners in accordance with provisions of the section of the catalog entitled Admissions.

A Selections Committee for the College determines the students who are to be accepted. The enrollment is based upon the limitation imposed by laboratory and clinical facilities and clinical materials. Admission to the University does not guarantee admission to this College. A limited number of out-of-state students, in proportion to the number in the respective academic programs, may be enrolled.

Students planning to major in one of the curricula offered in the College of Health Related Professions should contact the Chairman of the curriculum they expect to enter, at the earliest possible date by letter and/or personal interview.

GRADUATE PROGRAMS

Graduate work in rehabilitation counseling leads to the degree of Master of Rehabilitation Counseling. For requirements for this degree, consult the *Graduate School Catalog.*

Graduate work in health and hospital administration leads to the degree, Master of Business Administration. Major responsibility for the program rests with the College of Business Administration and the College of Health Related Professions. For requirements for this degree, consult the Graduate School Catalog.

HEALTH POLICIES

In addition to the health regulations of the University for all entering students, the College of Health Related Professions requires an annual physical examination. The form for this examination should be obtained by the student from the Infirmary and returned there when completed. Written proof of immunization against poliomyelitis must be presented before admission to the College of Health Related Professions or before registering for the first clinical course, whichever occurs first.

During the first clinical course, and biannually thereafter, the Student Infirmary personnel will test each Health Related Professions student for sensitivity to tuberculosis. Immunization against diphtheria and tetanus will be done annually. Students who do not have the sensitivity test and the immunization on the specified dates will be notified and charged a fine by the Infirmary.

Each student registered in clinical courses is required to have some form of hospitalization insurance. All full-time students taking 12 or more quarter hours of credit are eligible for the health insurance plan sponsored by the Student Government. This may be purchased at the time of registration and gives a twelve month coverage.

GRADUATION WITH HONORS

To graduate *With Honors*, a student must have an honor point average of 3.2 or higher in the work of the Upper Division. To graduate *With High Honors*, a student must have an honor point average of 3.5 or higher in the work of the Upper Division. In either instance the student must also be recommended by a faculty committee.

PROFESSIONAL ORGANIZATIONS AND CLUBS

Eta Rho Pi, the honor society for College of Health Related Professions, is an officially recognized campus organization and the first of its kind in the country. Members are chosen from any degree-*offering* division of the College. The purpose of this society is to encourage and recognize scholarly and professional attainments and to promote the advancement of professional standards in the health related professions.

Students are also eligible for other university honorary fraternities. In addition, each curriculum has professional clubs associated with it which all interested students are eligible to join.

EXPENSES

In addition to the usual University tuition and fees, students will be expected to furnish designated uniforms and shoes for clinical work. This will be necessary for students in physical therapy and occupational therapy in the junior and senior years and for students in medical technology in the senior year.

Field experience is required of students in physical therapy and occupational therapy following completion of academic work. The student shall be responsible for financing this portion of his preparation. Costs vary depending upon location of the field assignment.

STUDENT AID

Students interested in part-time employment, assistantships, loans, prizes, and awards should apply to the office of Student Financial Aid, University of Florida, Gainesville, Florida. A limited amount of scholarship, traineeship, and loan assistance reserved exclusively for students in the College of Health Related Professions, is administered by the College. Application for such assistance is made to the Chairman of the department in which the student plans to major.

MEDICAL TECHNOLOGY
GENERAL STATEMENT

Medical technology encompasses the largest single group of clinical laboratory workers. As the number and complexity of clinical laboratory examinations and pro-

cedures continue to increase, the need for well-trained medical technologists for service, teaching, research, and administrative positions far exceeds the supply. Many excellent employment opportunities are available for men and women with degrees in medical technology.

Medical technologists furnish physicians with laboratory data relative to the diagnosis and treatment of patients as well as in connection with medical education and research. They carry out the great majority of examinations of blood and other body fluids, isolation and identification of disease producing organisms, blood banking procedures, serological tests, and related laboratory studies. They prepare body tissues and other materials for further specialized examinations by pathologists and other clinical laboratory specialists. Most medical technologists work in hospitals and other clinical and public health laboratories, and in physicians' offices. They also have excellent employment opportunities in the biological and pharmaceutical firms, in veterinary medicine, and in many related areas.

PROFESSIONAL ORGANIZATIONS

Lambda Tau is a national medical technology honor society with established chapters in undergraduate colleges and universities. Its purposes are: to develop a spirit of cooperation and unity among students entering any of the fields of medical laboratory technology; to stimulate a higher type of ideal for scholastic effort, to encourage research, and to help develop the professional character of the work itself; and to interest other students in these fields. Students maintaining a required scholastic average are eligible for membership.

Students enrolled in the professional curriculum may become student members of the American Society of Medical Technologists.

CURRICULUM

The Bachelor of Science in Medical Technology is awarded upon the satisfactory completion of the course requirements in the medical technology curriculum. The curriculum has been approved by the Council on Medical Education of the American Medical Association. Satisfactory completion of these requirements is the basis for eligibility for the examination by the Registry of Medical Technologists of the American Society of Clinical Pathologists. Successful passing of this examination qualifies the candidate for certification as a Registered Medical Technologist, M.T. (A.S.C.P.), and for membership in the American Society of Medical Technologists. This program also meets requirements for admission to licensure examinations in those states which regulate the practice of medical technology.

A Selections Committee determines the students who are to be accepted. Enrollment is based upon the limitations imposed by available laboratory and clinical facilities and materials. Interested students should contact by letter and/or by personal interview the Chairman of the curriculum at the earliest possible date but no later than the February prior to the beginning of the junior year. Admission to the University does not guarantee admission to this curriculum. A limited number of out-of-state students may be enrolled.

For freshman and sophomore programs of study consult section of catalog entitled Lower Division.

JUNIOR YEAR

Fall Quarter		*Credits*
MET 302	Introduction to Laboratory Procedures 1	1
BCY 302	Introductory Bacteriology	5
HRP 331	Basic Anatomy and Physiology	3
Electives		7
		16

Winter Quarter		*Credits*
MET 303	Fundamentals of Medical Technology 1	2
MET 304	Introduction to Laboratory Procedures 2	1
BCY 505	Basic Immunology	4
Electives		9
		16

Spring Quarter			*Credits*
BCY	506	Bacterial Pathogens	5
ZY	320	Human Parasitology	4
MET	305	Fundamentals of Medical Technology 2	2
MET	306	Introduction to Laboratory Procedures 3	1
CY	375	Organic Chemistry Laboratory	2
Electives			2
			16

SENIOR YEAR

Summer Quarter			*Credits*
MET	401	Clinical Laboratory Practicum 1	5
MET	402	Clinical Laboratory Practicum 2	5
MET	409	Principles of Clinical Laboratory Methodology 1	2
			12

Fall Quarter			*Credits*
MET	403	Clinical Laboratory Practicum 3	5
MET	404	Clinical Laboratory Practicum 4	5
MET	410	Principles of Clinical Laboratory Methodology 2	2
MET	413	Seminar in Medical Technology 1	1
			13

Winter Quarter			*Credits*
MET	405	Clinical Laboratory Practicum 5	5
MET	406	Clinical Laboratory Practicum 6	5
MET	411	Principles of Clinical Laboratory Methodology 3	2
MET	414	Seminar in Medical Technology 2	1
			13

Spring Quarter			*Credits*
MET	407	Clinical Laboratory Practicum 7	5
MET	408	Clinical Laboratory Practicum 8	5
MET	412	Principles in Clinical Laboratory Methodology 4	2
MET	415	Seminar in Medical Technology 3	1
			13

OCCUPATIONAL THERAPY GENERAL STATEMENT

Occupational therapy is an integral part of the comprehensive medical care and rehabilitation of patients with physical and mental illnesses. The occupational therapist, working at the direction of and in collaboration with qualified physicians, uses creative arts, manual skills, recreational, educational and prevocational activities to assist in restoring ill and disabled persons to health. The activities for each patient are selected to meet his specific problems and needs.

A variety of activities are utilized in evaluation and treatment of patients with psychiatric disorders. For example, creative activities may be utilized in the treatment of a mentally ill person in order to stimulate emotional growth and to develop healthy, interpersonal relationships. Since the majority of the activities are manual in nature, occupational therapy for the physically handicapped patients is used mainly to improve functional hand and arm use. The activities selected may improve physical performance by providing specific exercise to improve coordination, to build endurance, or to restore motion and strength. Occupational therapy for children assists in the development of basic motor skills and in the acquisition of the manual and social skills required for school and play.

The occupational therapist also helps the severely disabled person to become independent in activities of daily living by adapting equipment and modifying tasks

to meet the needs of the patient. Information related to a patient's potential for employment is obtained through the evaluation of the factors required for successful performance of various tasks relating to work skills and work habits.

The occupational therapist works closely with other members of the health team as he plays an important role in helping those with disabilities and illnesses to function at their greatest potential. The demand for registered occupational therapists far exceeds the present supply, and there are many interesting and challenging opportunities for placement and for advancement in the profession.

PROFESSIONAL CLUBS AND ORGANIZATIONS

The Student Occupational Therapy Association of the University of Florida is officially recognized as a campus organization. Membership is open to all university students who are interested in occupational therapy. The purpose of SOTA is to stimulate interest in occupational therapy among prospective and currently enrolled students and among related professional and community groups.

Students formally enrolled in the professional curriculum are eligible to become student members of the American Occupational Therapy Association and of the Florida Occupational Therapy Association.

Students who meet the requirements are also eligible for active or alumni membership in the Eta Rho Pi Society, the honor society for the College of Health Related Professions.

CURRICULUM

The Bachelor of Science in Occupational Therapy is awarded upon completion of the course requirements in the occupational therapy curriculum. In order to meet qualifications to practice occupational therapy, the student must also satisfactorily complete six to nine months of clinical internship. Internship includes experience in psychiatric hospitals and approved centers offering experience with various types of physical disabilities and with all age groups. A Certificate of Proficiency in Occupational Therapy is awarded by the College of Health Related Professions upon completion of internships.

The curriculum in occupational therapy is approved by the Council on Medical Education of the American Medical Association and by the American Occupational Therapy Association. Satisfactory completion of the academic and clinical internship requirements is the basis for eligibility for the examination for the Registry of the American Occupational Therapy Association. Successful passing of this examination qualifies the candidate as a registered occupational therapist (OTR) and for professional membership in the American Occupational Therapy Association and in the affiliated state associations. National registration is the basis for employment in civilian, military, state, and federal hospitals, rehabilitation centers, community clinics and schools for crippled children throughout the United States and in most foreign countries.

A Selections Committee determines the students who are to be accepted. Enrollment is based upon the limitations imposed by laboratory and clinical facilities and materials. Admission to the University does not guarantee admission to this curriculum. A limited number of out-of-state students may be enrolled.

For freshman and sophomore programs of study consult section in catalog entitled Lower Division.

JUNIOR YEAR

			Credits
OCT	301	Introduction to Occupational Therapy	4
OCT	302	Applied Human Development	4
OCT	361-362-363	Therapeutic Skills	9
OCT	431	Musculoskeletal Anatomy	5
OCT	366	Community Resources	4
HRP	401	Psychiatric Disorders	4
HRP	431	The Nervous System	4
HRP	432	General Pathology	4
Electives			10
			48

SENIOR YEAR

			Credits
OCT	421	Problems of Psychosocial Dysfunction-Evaluation	4
OCT	422	Problems of Psychosocial Dysfunction, Treatment	5
OCT	441	Problems of Physical Dysfunction, Evaluation	4
OCT	442	Problems of Physical Dysfunction, Treatment	5
OCT	461	Practicum, Rotating	3
OCT	462	Practicum, Psychosocial Dysfunction	3
OCT	463	Practicum, Physical Dysfunction	3
OCT	480	Occupational Therapy Seminar	4
HRP	417	Kinesiology	3
HRP	433-434	Medical and Surgical Disorders	6
Electives			8
			48

PHYSICAL THERAPY GENERAL STATEMENT

Physical therapy offers a challenging career for young men and women who are interested in scientific and medical fields and who like to work with people. There is a great shortage of registered therapists and graduates have a wide choice of employment opportunities. It is one of a number of services closely allied with comprehensive health care and is an integral part of rehabilitation. It has, as its objective, optimum functional restoration of patients disabled by illness or injury.

Patients are referred for physical therapy by licensed physicians with whom the physical therapist works closely in carrying out evaluative procedures to determine the degree and extent of disability and in planning and administering the therapeutic program. Objectives of physical therapy are to assist in the alleviation of pain and restoration of function in order that the patients may be able to return to work, to school, and to their homes and to again become contributing members of their communities. Illustrative of patients—from new born to aged—referred for physical therapy are those whose disabilities result from fractures, nerve injuries, birth defects, brain damage, cardiac problems, "stroke," and other diseases of bone, joint, circulatory, respiratory and neuromuscular systems.

Physical therapy requires knowledge and background in biological, physical and behavioral sciences such as psychology, gross and applied anatomy, physiology and pathology. It utilizes this knowledge in the application of the therapeutic properties of exercise, heat, cold, electricity, ultra sound and massage. The physical therapist works closely with the physician, occupational therapist, nurse, speech and hearing therapist, psychologist, and other members of the health team as they combine their skills and knowledge for the welfare of the patient.

In addition, physical therapists work with medical personnel and community health organizations in contributing to planning programs of patient care and management. They may serve as consultants and advisors, supervise physical therapy and supportive personnel, and participate in educational activities in various settings.

REGISTRATION

To be eligible to work as a physical therapist in Florida a person must be at least 20 years old and registered under the provisions of The Physical Therapy Practice Act, Florida Statutes 486. State registration for physical therapists is administered under the auspices of the Florida State Board of Medical Examiners. Examinations for registration under this Act are given semi-annually.

PROFESSIONAL CLUBS AND ORGANIZATIONS

The University of Florida Student Physical Therapy Association is officially recognized as a campus organization. It is open to all students registered at the University who are interested in physical therapy. Its purpose is to promote personal and

professional growth of its members and greater interest and understanding of physical therapy through participation in the activities of student and graduate professional organizations.

Students enrolled in the professional curriculum also become student members of the American Physical Therapy Association.

CURRICULUM

The Bachelor of Science in Physical Therapy is awarded upon satisfactory completion of the course requirements in the physical therapy curriculum. Courses must be taken in approved sequence. No physical therapy course in which the grade earned is below "C" may be counted toward degree requirements. To continue in the curriculum students are expected to demonstrate interest, ability and aptitude for professional responsibilities in physical therapy.

In addition to academic requirements, students will be assigned for a 14-week period of field experience in facilities approved by the faculty of the Department of Physical Therapy. No student will be qualified to practice physical therapy until he has satisfactorily completed this field experience and received the Certificate of Proficiency in Physical Therapy from the College of Health Related Professions.

Satisfactory completion of these requirements is the basis for professional certification as a physical therapist: (1) in states which have laws regulating the practice of physical therapy, (2) for membership in the American Physical Therapy Association, (3) for registration with the American Registry of Physical Therapists, (4) for employment in general and specialized hospitals, rehabilitation centers, schools for handicapped children, public health programs, and facilities for the chronically ill, and (5) service as a commissioned officer in the Armed Services.

A Selections Committee determines the students who are to be accepted. The enrollment is based upon the limitations imposed by laboratory and clinical facilities and clinical materials. Admission to the University does not guarantee admission to this curriculum. A limited number of out-of-state students may be enrolled.

For freshman and sophomore programs of study consult section of catalog entitled The Lower Division. Applications for admission to the Upper Division College of Health Related Professions should be made as soon as the student has enrolled in the term in which he will complete 96 quarter hours of university work.

Students expecting to transfer to the University of Florida to study physical therapy should make application early in the year prior to the term they wish to enter the University.

The sequence of professional courses in physical therapy will begin in the fall quarter of each year.

Students planning to major in physical therapy should contact the Chairman of the Department at the earliest possible date by letter and/or personal interview.

JUNIOR YEAR

1st Quarter		*Credits*
PHT 301	Introduction to Physical Therapy and Concepts of Health Care	3
PHT 311	Clinical Science I	5
PHT 332	Human Anatomy	4
Electives		4
		16

2nd Quarter		*Credits*
PHT 312	Clinical Science II	5
HRP 417	Kinesiology	5
HRP 331	Basic Anatomy and Physiology	5
		15

3rd Quarter		*Credits*
PHT 351	Physical Modalities	5
HRP 431	The Nervous System	4
HRP 433	Medical and Surgical Disorders	5
PHT 361	Community Health Services	3
		17

SENIOR YEAR

1st Quarter		*Credits*
PHT 433	Anatomy Dissection	3
HRP 434	Medical and Surgical Disorders	5
PHT 411	Therapeutic Procedures I	4
PHT 491	Clinical Practicum	3
		15

2nd Quarter		*Credits*
PHT 435	Medical Disorders	3
PHT 412	Therapeutic Procedures II	4
HRP 401	Psychiatric Disorders	4
PHT 492	Clinical Practicum	3
		14

3rd Quarter		*Credits*
PHT 499	Internship	12

4th Quarter		*Credits*
PHT 444	Survey of Patient Problems	3
PHT 461	Senior Seminar	4
PHT 430	Individual Work	2
Electives		3
		12

College of Journalism and Communications

The curricula in the College of Journalism and Communications lead to the degrees of Bachelor of Science in Journalism, Broadcasting, or Advertising.

The College stresses a broad background in liberal arts and sciences—history, political science, economics, literature, psychology, sociology and physical sciences—which is essential to those entering journalism, broadcasting, advertising, public relations, and allied professions.

In this College the student spends about three-fourths of his time on general background courses to gain an informed acquaintance with the major areas of human knowledge. The remaining one-fourth involves the development of professional techniques in relation to this background knowledge.

Students gain practical experience in the University's radio and television stations, on the College's laboratory newspaper, on student publications, through the summer internship programs, and on the local daily newspaper, The Gainesville Sun.

ADMISSION REQUIREMENTS

To be eligible for admission to the College of Journalism and Communications, students should have fulfilled the following requirements: (1) Earned 96 quarter hours of acceptable college credit with a minimum 2.0 (C) grade average; (2) completed the Comprehensive Courses of the University College or their equivalents; (3) completed the pre-professional courses listed under "Undergraduate Curriculum" on a following page of this section.

All students must be able to type.

A Committee on Admissions will consider applications from students who do not meet the minimum requirements.

TRANSFER STUDENTS

Admission to the College normally is at the end of two years of study, whether the student has attended University College or another college. Junior College students are urged to complete the program of general education as required by the Junior College.

Because college requirements differ, some transfer students may be required to take courses to make up deficiencies. Credits earned in these courses will be applied toward graduation.

For the pre-professional courses, listed under "Undergraduate Curriculum" in this section of the Catalog, Junior College and other transfer students may offer substitutes.

Students applying for transfer from other colleges and universities will have their transcripts evaluated by the Registrar and the College.

All transfer students are referred to the section on "Admissions" in another part of this Catalog.

REQUIREMENTS FOR DEGREE

The professional courses are concentrated in the Upper Division, where the curricula are divided into major programs.

Those specializing in the News-Editorial, Public Relations, Urban Affairs Reporting, or Technical Journalism fields will take the appropriate sequence in the Bachelor of Science in Journalism program. Students interested in radio and television will register for the program leading to the degree of Bachelor of Science in Broadcasting. Those wishing Advertising will take the program leading to the degree of Bachelor of Science in Advertising; work in this program includes both the printed and audiovisual media.

Students wishing to specialize in more than one field may earn a second degree in this College by completion of an additional 45 credits of work, with the necessary qualitative and residence requirements.

The minimum requirement for graduation is 96 quarter credits, in which the student must earn an overall Upper Division average of C (2.0) or better and an average grade of C or better in all professional courses.

A portion of the student's elective credit hours in any sequence offered by the College must be chosen from outside the College of Journalism and Communications and must be exclusive of courses required by the College. This part of Upper Division Study is called the minor. The student and his counselor shall select these credit hours from one area of at least twenty hours, or from two areas, one of at least ten hours and the other of at least 12 hours.

Courses for minor credit may be taken under the pass-fail option with the following restrictions [in addition to University restrictions]:

1. The option may not be applied to any course below the 300 level.
2. Not more than five credits of pass-fail work may be offered in fulfillment of the minor requirement.
3. No basic course (for example, SY 201, MGT. 310) may be offered for minor credit under pass-fail.

Of the 96 credits required for admission to the College, and the 96 credits required for graduation, no more than 60 credits may be in courses designated ADV, BR, or JM.

PROBATION

A student who fails to earn a 2.0 average in any quarter; whose overall average on all work attempted while a student in this College falls below a 2.0; or whose overall average on all professional courses attempted while a student in this College falls below a 2.0, will be placed on probation by this College. He must raise his overall average in this College, and his professional average, to a 2.0 within two quarters of attendance from the time he is placed on probation.

A student on probation with this College must enroll for at least 12 credit hours each quarter; the dropping of any course or withdrawal from the University without permission of this College will be considered a violation of this probation.

The student should realize there are two types of probation, University probation (described in another section of this Catalog) and College probation, and the student may be subject to either or both in any quarter. Failure to meet terms of College probation means the student may not continue work in this College.

HONORS

The College recognizes high grades through an honors program and high honors recognition; details may be obtained from the office of the Dean.

Each quarter, the Dean's List names students who have earned averages of 3.2 and higher; these students receive certificates of achievement.

ASSISTANTSHIPS

Financial assistance is available through student and graduate assistantships in this College. Information may be obtained from the office of the Dean.

SPECIAL PROGRAMS

AGRICULTURAL JOURNALISM: A special program leading to a Bachelor of Science Degree with emphasis on agricultural Journalism is available. Interested students should consult with the Dean of the College of Journalism and Communications and with the Dean of the College of Agriculture. Agriculture students seeking a single course in handling agriculture publicity and news for newspapers, magazines and radio-television are advised to register for JM 420.

JOURNALISM FOR TEACHERS: Special training and supervised research are available for Journalism teachers and others interested in work at the high school level. Students seeking state certification in Journalism should consult with the office of the Dean.

TELEVISION FOR TEACHERS: The College offers instruction in the use of television production techniques and their utilization in informational and educational programs.

PROFESSIONAL AND HONORARY ORGANIZATIONS

Seven national professional and honorary fraternities select members from undergraduates in the College of Journalism and Communications: Sigma Delta Chi, men in journalism; Theta Sigma Phi, women in journalism; Alpha Delta Sigma, men in advertising; Gamma Alpha Chi, women in advertising; Alpha Epsilon Rho, men and women in broadcasting; Kappa Tau Alpha, scholastic honorary for men and women and Zeta Phi Eta, women in broadcasting. The Florida Public Relations Association, an affiliate of the Public Relations Society of America, endorses the Student Public Relations Organization.

The College is a member of the American Association of Schools and Departments of Journalism, the National Association of Educational Broadcasters, the Association of Professional Broadcasters, the Florida Association of Broadcasters, the Radio Advertising Bureau, the Television Bureau of Advertising, the Florida Scholastic Press Association, the Advertising Research Foundation, the American Association of Industrial Editors, the Audit Bureau of Circulation, and the Florida Magazine Association.

The College has a close relationship with the Florida Press Association. This association of Florida's newspapers has set up its state headquarters in Gainesville in order to be near and work with the faculty and students of the College.

The executive secretary of the Florida Scholastic Press Association is a member of the faculty of the College of Journalism and Communications. Summer institutes for high school journalists and workshops in television are held in the College's air-conditioned quarters.

NATIONAL STANDING OF COLLEGE

The College of Journalism and Communications at the University of Florida is the only such college in Florida accredited by the Amercian Council on Education for Journalism. The curricula, faculty, facilities and alumni achievements are evaluated regularly by the American Council on Education for Journalism, whose membership includes the American Society of Newspaper Editors, the American Newspaper Publishers Association, the National Editorial Association, the Inland Press Association, and the National Association of Broadcasters, as well as journalism educators.

GRADUATE DEGREE

The College of Journalism and Communications, through the Graduate School, offers a program leading to the degree of Master of Arts in Journalism and Communications. Graduate work is offered with specialization in the communications media—the press, radio, television—in advertising, public relations, journalism or broadcast education, in international communications or communications research. Consult the *Graduate School Catalog.*

UNDERGRADUATE CURRICULUM

The program for students expecting to enter the College of Journalism and Communications is as follows:

GROUP A

(must be completed by all students)

			Credits
CSS	111, 112, 113	American Institutions	9
CEH	131, 132, 133	Comprehensive English	9
CHN	251, 252, 253	The Humanities	12
UCC	191	Cybernetics and Society	5

GROUP B

(students may omit the last quarter of CPS, CLC or CBS)

CPS	121, 122, 123	The Physical Sciences	10
CLC	141, 142, 143	Comprehensive Logic	6
CMS	171	Fundamental Mathematics	4
CBS	261, 262, 263	Biological Sciences	9

PRE-PROFESSIONAL

Students should complete the following pre-professional courses before admission to the College of Journalism and Communications, and must complete them before a degree can be awarded.

JM	118	Survey of Communications	3
JM	201	Writing for Mass Communications	4
SCH	201	Effective Speaking	4
LY	201	Uses of Books and Libraries	2
HY	245, 246	U. S. History	10
ES	201	Basic Economics	5
BR	212	Introduction to Broadcasting (Broadcasting majors only)	3
Electives			3-7
			96

UPPER DIVISION CURRICULA

The programs for students who have been admitted to the College of Journalism and Communications are as follows:

ADVERTISING PROGRAM

(BS in Advertising)

			Credits
ADV	305	Graphic Arts Production	3
ADV	306	Elements of Advertising	4
ADV	402	Radio-TV Advertising	5
ADV	410	Advertising Copy and Layout	5
ADV	507	Public Opinion Theory and Advertising	5
ADV	512	Advertising Campaigns	4
ADV	560	Seminar	4
MKG	331	Principles of Marketing	4
MKG	352	Marketing Communications Creation	4
JM	414	Public Relations	4
JM	509	Law of Press and Radio-TV	4
PSY	201	General Psychology	4
		or	
PSY	300	Personality Development	3
		or	
SY	201	Principles of Sociology	4
Electives (including minor)			46-47
			96

JOURNALISM PROGRAM

(BS in Journalism)

News-Editorial Sequence			*Credits*
JM	301	Elementary Reporting	5
JM	340	Editing	5
JM	342	Photo Journalism	5
JM	402	Advanced Reporting	4
JM	407	History of Journalism	4
JM	450	Applied Journalism	5
JM	508	Public Opinion	5
JM	509	Law of Press and Radio-TV	4
JM	560	Seminar	5
PCL	201	American Federal Government	5
PCL	220	American State & Local Government	3
Electives (including minor)			46
			96

JOURNALISM PROGRAM
(BS in Journalism)

Public Relations Sequence			*Credits*
ADV	305	Graphic Arts Production	3
JM	301	Elementary Reporting	5
JM	342	Photo Journalism	5
JM	413	Magazine and Feature Writing	4
JM	414	Public Relations	4
JM	425	Business and Technical Journalism	4
ADV	507	Public Opinion Theory and Advertising	5
or			
JM	508	Public Opinion	5
JM	509	Law of Press and Radio-TV	4
JM	514	Advanced Public Relations	4
JM	561	Public Relations Seminar	4
BR	318	Broadcast Writing	4
PSY	201	General Psychology	4
or			
PSY	300	Personality Development	3
or			
SY	201	Principles of Sociology	4
PCL	201	American Federal Government	5
PCL	220	American State & Local Government	3
Electives		(including minor)	38-39
			96

JOURNALISM PROGRAM
(BS in Journalism)

Technical Journalism Sequence			*Credits*
JM	301	Elementary Reporting	5
JM	340	Editing	5
JM	342	Photo Journalism	5
JM	413	Magazine and Feature Writing	4
JM	414	Public Relations	4
JM	425	Business and Technical Journalism	4
JM	509	Law of Press and Radio-TV	4
PCL	201	American Federal Government	5
PCL	220	American State and Local Government	3
EH	403	Report Writing	4
*Field of Technical Specialization			32
Electives			21
			96

*Fulfills minor requirement

BROADCASTING PROGRAM
(BS in Broadcasting)

			Credits
BR	318	Broadcast Writing	4
BR	323	Broadcast Production 1	4
BR	325	Broadcast Production 2	4
BR	424	Cinematography for TV	4
BR	425	The Broadcast Program	4
BR	436	Radio-TV Reporting	4
BR	560	Seminar	4
ADV	402	Radio-TV Advertising	5
JM	301	Elementary Reporting	5
JM	509	Law of Press and Radio-TV	4
PCL	201	American Federal Government	5
PCL	220	American State & Local Government	3
Electives			46
			96

JOURNALISM PROGRAM
(BS in Journalism)

Urban Affairs Reporting Sequence	*Credits*
JM 301 Elementary Reporting	5
JM 340 Editing	5
JM 342 Photo Journalism	5
JM 402 Advanced Reporting	3
JM 407 History of Journalism	4
JM 430 Bachelor's Thesis	3
JM 450 Applied Journalism	5
JM 508 Public Opinion	5
JM 509 Law of Press and Radio-TV	4
JM 560 Seminar	5

*Hours of specialization as follows:

Sociology

Students must take SY 201, Principles of Sociology, and any four of the following courses:	4
SY 202 Problems of American Society	4
SY 311 The Field of Social Work	4
SY 321 Community Organization	4
SY 350 Urban Sociology	4
SY 391 Minority Groups	4
SY 581 Collective Behavior	4

Political Science

Students must take PCL 201, Federal Government and PCL 220, State and Local Government, and any two of the following courses:	8
PCL 207 Introduction to Comparative Government	5
PCL 401 American Constitutional Law	5
PCL 404 International Law	3
PCL 410 Communism: Theory and Practice	5
PCL 411 Public Administration and the Political Process	5

Economics

Students must take:	
ES 202 Basic Economics II	5
ES 301 Macro Economic Theory	3
ES 431 Public Finance	3
Electives	3-5
*Fulfills minor requirements	96

Center for Latin American Studies

The Center for Latin American Studies is the University unit responsible for directing or coordinating interdisciplinary instructional and research programs related to Latin America. It is a budgeted unit within the University and is administered by a Director immediately responsible to the President.

UNDERGRADUATE PROGRAM IN LATIN AMERICAN STUDIES

The College of Arts and Sciences offers to undergraduate students a special curriculum leading to the B.A. degree with a Certificate in Latin American Studies. The course of study is designed to provide a broad cultural base for graduate work in the field for careers with Latin American connections in business, government, or teaching.

The program is based on a departmental major leading to the degree of Bachelor of Arts. The major may be selected from the following fields: anthropology, economics, geography, history, political science, Portuguese, sociology, and Spanish. The student must fulfill all of the College of Arts and Sciences' requirements for admission and for obtaining the Bachelor of Arts degree. Two special requirements exist for the certificate: (1) the student must include in his program 36 to 40 credits in courses with Latin American emphasis, courses taken within the major being counted in fulfillment of the requirement; (2) the student must demonstrate a reading and speaking knowledge of Spanish or Portuguese. This requirement may be satisfied either through course work or through special examination.

Additional information may be obtained from the Program Advisor, John Freels, 203 Building I, University of Florida, Gainesville, Florida 32601.

OTHER ACTIVITIES

The Center also sponsors conferences, publishes the results of scholarly research related to Latin America, and cooperates with other University units in overseas development and training programs.

College of Law

THE COLLEGE OF LAW, founded in 1909, began its work in the Thomas Hall Dormitory for men. The Law Building, erected in 1914, was one of the first permanent units on the campus. The College was accredited by the New York State Board of Regents in 1917, admitted to membership in the Association of American Law Schools in 1920, and recognized as an approved school by the American Bar Association in 1925. Women students were admitted beginning in 1925, and in 1933 the requirements for admission were increased to require an academic degree.

In January of 1969, the College occupied its new academic building designed to accommodate twelve hundred students. This building is the first unit of a complete Law Center which will eventually include academic, housing and food service units. The academic building, in addition to classroom, courtroom, and administrative space, contains a library housing over 100,000 volumes with capacity for an additional 100,000 volumes.

The curriculum of the College is arranged so that the courses prescribed for the first year assure a sound foundation for further study. During the final quarters a wide election is afforded, subject to minimum credit hour requirements in each of the major fields of law study. The student, while required under this arrangement to pursue a course of study sufficiently broad to prepare him for the legal profession, may concentrate upon such subject areas as are of particular interest to him.

The goal of the College is to impart a thorough, scientific and practical knowledge of the law, together with an understanding of its role in a democratic society. It aims to develop keen, efficient lawyers who will respect the ideals and traditions of the profession. The policy of the college places emphasis upon practical skills as well as legal theory; problems of the modern world as well as historical perspective; the creative aspects in the drafting of documents as well as in the body of legal doctrines.

The College of Law offers a program leading to the degree of Juris Doctor. Admission is limited to those with a bachelor's degree from an accredited college or university who have satisfactory undergraduate records and have attained a satisfactory score on the Law School Admission Test. This Test is administered by the Educational Testing Service of Princeton, N.J. Applications to take the Test can be obtained from the Office of the Registrar, Tigert Hall, or the Office of the Dean, College of Law.

For detailed information on admission requirements, courses and programs, see the *College of Law Catalog*. Copies can be obtained by writing the Director of Admissions, University of Florida, Gainesville, Florida.

University of Florida Law Center Scholarships.—Twelve or more scholarships are available each year on a competitive basis to graduates of accredited colleges who are accepted in the freshman class. These scholarships, designed to provide outstanding students an opportunity for law study under the most favorable conditions, will be continued through the second and third years for recipients who maintain a high standard of performance. The scholarships will carry an annual stipend ranging from $800.00 to $1,600.00 and will be awarded on the basis of scholastic record, score on the Law School Admission Test, character, aptitude, and apparent promise of success in the legal profession. Need will be considered where other factors are closely balanced.

To receive first consideration, scholarship applications should be received before December 1st for the Spring class and before April 1st for the Fall class. Later applications will be considered so far as available resources will permit. Application forms and additional information may be obtained from the Dean of the College.

College of Medicine

The College of Medicine, a unit of the J. Hillis Miller Health Center, began operations in 1956 and is located on the south end of the campus. This location in direct proximity to University facilities offers many opportunities to engage resources of the University in the educational and investigative programs of the College. For example, there exists a joint program with the Division of Biological Sciences in the field of Cellular and Molecular Biology and likewise a program is planned with the College of Engineering in Biomedical Engineering. Also, computational and statistical services are available through University resources.

The College of Medicine is responsible for several major educational programs. Foremost is the four year program leading to the M.D. degree into which 64 students are accepted annually. After graduation the young physicians may enter an internship and subsequently a residency program. Presently, the College of Medicine offers approximately 250 such positions. The basic medical science departments offer the Ph.D. degree in the Medical Sciences with specialization in Anatomical Sciences, Biochemistry, Microbiology, Pathology, Pharmacology and Physiology. In addition, a Master of Science degree in Radiation Biophysics is offered by the Department of Radiology in collaboration with the Nuclear Sciences Division. Further training is offered through a number of positions for postdoctoral research fellows in all basic science and clinical departments. The clinical departments conduct several seminars as part of their continuing education program for practicing physicians. In addition, some of the clinical departments have assumed responsibility for community medicine programs in communities surrounding Gainesville.

The faculty is dedicated to a teaching program of high quality. Close faculty-student relationship is encouraged by the design of the four year curriculum and a preceptorship program. The educational program has as its objective to enable the graduate to choose any career offered in medicine. Therefore, emphasis is placed on understanding of fundamental biological principles and their relevance for the practice of medicine.

Students intending to apply for admission should complete the requirements for a Bachelor's degree although a limited number of exceptional students may be considered for admission at the end of their third year of college. In general, applicants over the age of thirty will not be considered. An applicant to the College of Medicine must have personal qualities of the highest order—character, integrity, intellectual honesty, responsibility, maturity, initiative, and aptitude. In addition, the student must have demonstrated superior intellectual achievement during his undergraduate work.

Unusually gifted students may enter a combined M.D.-Ph.D program which offers a unique opportunity of integrating clinical experience with competence in basic biomedical research. This program is a consequence of the dependence of the practice of medicine on the scientific advances in the biological sciences.

In the spring of 1967, the College of Medicine activated the Human Development Center which includes the Children's Mental Health Unit. The Center provides additional opportunities for research and education in the field of developmental sciences as they apply to human biology, behavior and disease. Also in the same period the College of Medicine has assumed responsibility for patient care, teaching and research at the new Veterans Administration Hospital located next to the J. Hillis Miller Health Center. In addition the College is involved in several projects concerned with Community Health Care.

Further detailed information will be found in the College of Medicine or the Graduate School catalogues. Copies may be obtained by writing to the Office of Student Affairs, College of Medicine, University of Florida, Gainesville, Florida 32601.

College of Nursing

GENERAL STATEMENT

The purposes of the College of Nursing are to conduct undergraduate and graduate degree programs in nursing; to conduct nursing internships and residency programs; to create an organizational structure and intellectual climate that will promote collaborative, colleague relationships with nursing staff in the Teaching Hospital in the demonstration of nursing practice that is science based, can be communicated and is consistently evaluated; to conduct nursing research; to both initiate and be receptive to collaborative efforts with other disciplines in teaching, practice, and research in the health fields; to conduct continuing education programs in nursing.

The establishment of the College of Nursing within the framework of the J. Hillis Miller Health Center at the University of Florida offers a unique opportunity to provide collegiate and professional training for nurses in a university setting. The program includes both general education in the University of Florida and professional preparation in the Health Center. The J. Hillis Miller Health Center also provides clinical training for physicians, scientists, pharmacists, and personnel in other health fields. The Teaching Hospital houses an outpatient clinic, an ambulatory wing, a psychiatric unit and a hospital wing for seriously ill patients. Other patient facilities, such as public health agencies, are also used to prepare students for beginning professional nursing positions. With these comprehensive and modern facilities, the student has opportunities for supervised observation and practice in all phases of patient care. Upon satisfactory completion of the program, the graduate will be awarded the degree of Bachelor of Science in Nursing and is then eligible for the State Board of Nursing examination for state licensure as a Registered Professional Nurse.

The nursing profession, if it is to meet the needs of society, must learn to apply the scientific and humanistic methods to the solving of nursing problems of individual persons, families, and communities. Considering this, the faculty, students, and nursing staff utilize this method for advancing nursing knowledge in order that patient care may be improved. The courses are developed around the theme of the thinking process in relation to nursing problems. The empirical consideration of such problems as nurturing, comforting, strengthening, teaching, maintaining, environmental supervising, and motivating are emphasized.

The program of the College of Nursing, is fully accredited by the National League for Nursing and is approved by the Florida State Board of Nursing.

REQUIREMENTS FOR ADMISSION

Native students must complete the prescribed courses and the requisite number of hours in University College with an overall grade point average of 2.00 or higher.

Transfer students must present college credit equivalent to that which is required by University College. Students who need to complete prerequisite courses for the nursing curriculum may be sponsored by the College of Nursing until they have completed such courses. Students will be considered by the Admissions Committee of the College of Nursing for admission to nursing courses when they have completed the courses listed in the first and second years of the curriculum. Admission to the College of Nursing does not insure admission to nursing courses numbered 300 and above. Registered nurses may apply to take exemption examinations in nursing courses after having been admitted to the College of Nursing.

Students are advised to apply for admission to the University by writing to the Registrar at least six months but not more than one year prior to the date of their anticipated enrollment. After the registrar has approved the admission of the student to the University, her credentials will be sent to the Committee on Admissions of the College of Nursing. Students will be selected in January for the Spring and Summer terms; however, individual consideration *may* be given to applications received after January for admission in the Fall and Winter terms. Upon admission to the nursing courses numbered 300 and above, the student will be assigned to a

group and will register for each quarter of the program according to a schedule which will be assigned to her.

The Dean and faculty of the College of Nursing are well aware of the social need to prepare an increasing number of well qualified nurses in baccalaureate programs; however, in order to safeguard patient care and student learning the college has reluctantly had to establish a quota for the admission of students.

REQUIREMENTS FOR DEGREE

To be eligible for graduation the student must complete the work of the Upper Division with a 2.0 grade point (C) average, and a 2.0 grade point (C) average in all professional courses.

A student must make a grade of D or better in each nursing course. A student may not proceed to any course for which a failed course is a prerequisite. A student may repeat a nursing course once.

RESIDENCE REQUIREMENT

The College of Nursing complies with the requirements for residency as stated in the section—*Student Regulations-Degrees and Graduation.*

GRADUATION

Graduation with Honors—To graduate with Honors, a student must have completed the work of the upper division and must have received a grade point average of 3.20 or higher for all college work.

Graduation with High Honors—To graduate with High Honors, a student must have received a grade point average of at least 3.50 in all college work.

Students are required to take at their own expense the Graduate Record Examination during the senior year.

CITIZENSHIP

A person writing State Board Examinations for licensure as a registered professional nurse must be a citizen of the United States. Students applying for admission to the program should, therefore, have full citizenship or have declared their intentions to become citizens of the United States.

HEALTH POLICIES

In addition to the health regulations of the University for all entering students, the College of Nursing requires an annual physical examination. The form for this examination should be obtained by the student from the infirmary and returned there when completed.

Upon admission to the College of Nursing, students will participate in an annual health evaluation which is a required learning experience for continuing in the program. The evaluation includes PPD testing for tuberculin reaction, chest x-ray and selected immunizations. Emphasis is placed throughout the nursing curriculum on the students assuming responsibility for their own health.

Each student registered in clinical nursing courses is expected to have adequate hospitalization insurance. All full-time students taking 4 or more quarter hours of credit are eligible for the health insurance plan sponsored by the Student Government. This may be purchased at the time of registration and gives a twelve month coverage.

EXPENDITURES

In order to participate in the activities of the first clinical courses (usually Nursing 301), the student will need to purchase uniforms, cap, name pin, white

shoes (according to specifications), scissors, and a watch with a second hand. White uniforms may be purchased by the student from any store which carries such merchandise. Emblems which designate College of Nursing student classification may be purchased from the bookstore in the Medical Science Building.

The student is referred to the section in this catalog for information about expenses.

To facilitate participation in specific courses, the ownership of a small portable tape recorder is recommended for the Nursing Skills Laboratory (NSG 301), and the use of a personal car for Community Nursing Laboratory (NSG 441).

CURRICULUM

The program in the College of Nursing consists of two divisions. During the first two years in the University College, or lower division, instruction is centered around the comprehensive courses to give the student a full, rich background for citizenship and a professional career.

The professional part of the program is offered in the College of Nursing or upper division. The University Teaching Hospital is the primary clinical facility; however, community agencies and/or homes are utilized for the learning experiences of students with patients and families in most of the nursing courses. All nursing courses require supervised observation and practice in the care of patients.

JUNIOR YEAR

Spring or Summer Quarter[*]

		Credits
NSG 300	Science Principles Applied to Nursing Practice	5
NSG 301	Nursing Skills Laboratory	10
		15

Fall Quarter

		Credits
NSG 310	Medical and Surgical Nursing	6
NSG 311	Medical and Surgical Nursing Laboratory	8
NSG 334	Epidemiology of Chronic and Communicable Diseases	3
		17

Spring Quarter

		Credits
NSG 330	Maternal and Infant Health Nursing	4
NSG 331	Maternal and Infant Health Nursing Laboratory	8
Elective		3-5
		15-17

Winter Quarter

		Credits
NSG 340	Pediatric Nursing	4
NSG 341	Pediatric Nursing Laboratory	8
Elective		3-5
		15-17

SENIOR YEAR

Spring Quarter

		Credits
NSG 440	Community Nursing	4
NSG 441	Community Nursing Laboratory	7
NSG 443	Public Health Science and Administration	4
		15

Fall Quarter

		Credits
NSG 450	Psychiatric Nursing	4
NSG 451	Psychiatric Nursing Laboratory	8
NSG 445	Nursing Aspects of Gerontology	4
		16

Winter Quarter

		Credits
NSG 461	Senior Clerkship	15
	Total Minimum Credits:	196

*Open only to students admitted to the nursing courses. Admission to the University does not insure admission to nursing courses numbered 300 and above. Students apply for admission to nursing courses in January. Half of the students admitted to nursing courses register for NSG 300 & 301 in the Spring term; the other half will register for these courses in the Summer term.

HONORARY ORGANIZATION

Sigma Theta Tau, Inc. is the only National Honor Society of Nursing in the United States. Constituent chapters, such as Alpha Theta Chapter at the University of Florida, are established in collegiate schools of nursing accredited by the National League for Nursing. Sigma Theta Tau, Inc. is professional rather than social, and its purposes are: to recognize the development of leadership qualities; to foster high professional standards; to encourage creative work; and to strengthen commitment on the part of individuals to the profession of nursing. Members are chosen for this organization primarily on the basis of scholastic average and leadership ability.

STUDENT AID

Information relating to sources of financial aid, as well as information relating to student employment may be obtained from the Office of Student Financial Aid.

Information relating to Florida's State Scholarship Loan Program may be obtained from the Superintendent of Public Instruction in each Florida County.

Additional information relating to financial aid may be obtained from the office of the Dean of the College of Nursing.

MASTER OF NURSING DEGREE

The College of Nursing, through the graduate school, offers a program leading to the degree Master of Nursing. Graduate work is offered with specialization in: Teaching, Administration or Clinical Specialization in Medical-Surgical Nursing, Pediatric Nursing, Maternal-Infant Health Nursing, or Psychiatric Nursing (including preparation for teaching or administration in junior college programs in nursing).

Consult the *Graduate School Catalog*.

College of Pharmacy

GENERAL STATEMENT

The Profession of Pharmacy has expanded and become more oriented toward several fields of specialization in the past decade. Such areas as product development, drug design, and *in vitro* and *in vivo* transformation of drugs are of greater importance today than ever before. Changes in the delivery of health care will have a pronounced influence on Pharmacy, as well as the entire health field, and will require pharmacy graduates of varying backgrounds of specializat.on.

The present curriculum is designed to provide a variety of career opportunities to the pharmacy graduate. It is divided into two parts in order to prepare the graduate for excellence in a field of desired emphasis or specialization. The first part includes a basic core of courses, comprising 99 quarter hours, which all students are required to complete. The second part, the area of specialization, comprises 42 quarter hours with a minimum of 19 quarter hours in the field of desired emphasis. The remaining hours are intended to consist of cultural courses and are freely selected by the student.

The curriculum provides instruction in subjects which are essential for the successful practice of the profession in community, hospital, and institutional pharmacies. Men and women graduates are in demand as sales representatives for wholesale and manufacturing pharmaceutical firms. They are eligible for a limited number of commissions in the U.S. Public Health Service and the Armed Forces. The courses provide a strong basis for additional study in preparation for research or analytical work in the pharmaceutical, chemical, biological, and cosmetic industries as well as inspection of food and drugs.

The College of Pharmacy, a unit in the J. Hillis Miller Health Center, meets the highest requirements of pharmaceutical instruction in this country. The College is accredited by the American Council on Pharmaceutical Education and therefore receives recognition for its courses from state boards requiring graduation from an accredited college of pharmacy as a prerequisite for examination and registration. The College is a member of the American Association of Colleges of Pharmacy and complies with its educational requirements.

The equipment includes pharmaceutical machinery for manufacturing dosage forms on a pilot-plant scale and modern facilities for undergraduate and graduate work in pharmacy, pharmaceutical chemistry, and pharmacognosy.

A ten-acre tract is used by the College of Pharmacy for a medicinal plant garden. This teaching adjunct is a source of supply of fresh material for study, investigation, and classroom illustration.

Students in the University College who plan to major in pharmacy are urged to contact the office of the Dean of the College of Pharmacy for assignment to counselors in the College and to confer with them regularly. Literature describing opportunities in pharmacy may be secured in the office of the Dean of the College of Pharmacy.

REQUIREMENTS FOR ADMISSION

(a) Graduation from the University College or its equivalent as determined by the Board of University Examiners, (b) recommendation of the Board of University Examiners, and (c) approval of the Committee of Admissions of the College of Pharmacy.

Students in the Lower Division planning to study pharmacy are referred to the recommended program of study outlined under University College, including the specific requirements for admission to the College of Pharmacy.

RESIDENCE REQUIREMENT

In keeping with the requirements for accreditation, all students expecting to earn the degree of B.S. in Pharmacy must be enrolled in one or more pharmacy

courses for a minimum of nine quarters. This regulation applies regardless of the number of studies completed in other fields.

GRADUATION WITH HONORS

To graduate With Honors, a student must either earn a grade point average of not less than 3.2 in the work of the College of Pharmacy or an average of 3.0 in the work taken in the University College and the College of Pharmacy. In the latter case a candidate must have had not less than three quarters of course work in University College.

To graduate with High Honors, a student must meet the requirements for graduation With Honors and be recommended for graduation With High Honors by the faculty.

BACHELOR OF SCIENCE IN PHARMACY

The Degree of Bachelor of Science in Pharmacy is awarded on completion of the curriculum as outlined below. All students are required to complete a directed course of study which is related to a field of desired emphasis or specialization to fulfill the requirements for the degree.

CURRICULUM

To be eligible for the degree of Bachelor of Science in Pharmacy all requirements of the curricula for pharmacy students in both the University College and the College of Pharmacy must be completed. The professional sequence of courses is on an annual basis only beginning in September each year. Students transferring to Pharmacy and planning to enter at times other than September should contact the Admissions Committee, College of Pharmacy, J. Hillis Miller Health Center, for a program of study.

All entering students will be required to complete the basic courses listed below and to select a field of desired emphasis or specialization as early as possible. Four such areas or options are listed. Some other area of specialization may be desired. In this case, in lieu of one of the listed options the student must prepare an appropriate list of courses which has been selected in consultation with his faculty counselor. In any case, a statement of preference must be submitted to the chairman of the College of Pharmacy Admissions Committee for approval at least five quarters prior to the expected date of graduation. Each option will require not less than 19 quarter hours of prescribed course work. The balance to make up at least 42 credit hours is to be selected freely by the student from courses, in general, of cultural nature.

The curriculum for the three professional years is as follows:

PROFESSIONAL CURRICULUM

First Professional Year

First Quarter	*Credits*	*Second Quarter*	*Credits*
PHY 300 Introduction to Pharmacy	5	PHY 301 Pharmaceutics 1	5
PHY 361 Applied Human Anatomy	3	PHY 363 Applied Human Histology	3
STA 320 Introduction to Statistics	4	CY 331 Quantitative Analysis	5
Approved Electives[a,b]	4	Approved Electives[a,b]	3
	16		16

Third Quarter	*Credits*
PHY 303 Pharmaceutics 2	5
BCY 302 Introductory Microbiology	5
PGY 361 Natural Products	5
	15

Second Professional Year

First Quarter	*Credits*
PHY 401 Pharmaceutics 3	5
PCY 455 Pharmaceutical Chemistry 1	5
PCY 443 Pharmaceutical Analytical Procedures	4
	14

Second Quarter	*Credits*
PHY 402 Pharmaceutics 4	5
PCY 456 Pharmaceutical Chemistry 2	5
BCH 402 Biochemistry	3
Approved Electives[a]	3
	16

Third Quarter	*Credits*
PCY 457 Pharmaceutical Chemistry 3	5
BCH 403 Biochemistry	3
PLY 465 Physiology-Pharmacology 1	5
Approved Electives[a]	3
	16

Third Professional Year

First Quarter	*Credits*
PLY 573 Physiology-Pharmacology 2	5
PHY 503 Pharmaceutics 5	4
Approved Electives[a]	7
	16

Second Quarter	*Credits*
PLY 574 Physiology-Pharmacology 3	5
Approved Electives[a]	11
	16

Third Quarter	*Credits*
PHY 521 Pharmaceutical Law	5
Approved Electives[a]	11
	16

TOTAL HOURS—141

[a]All students should follow a directed course of study through selection of one of the following professional options: Community Pharmacy, Hospital Pharmacy, Industrial Pharmacy or Research Pharmacy. Each area of specialization comprises 42 quarter hours with a minimum of 19 quarter hours required in the field of desired emphasis. The remaining hours can be freely selected by the student. Professional electives in the area of specialization should begin the second professional year of study.

[b]Students who are admitted to the College with course deficiencies should remove these deficiencies during the first professional year. If deficient in Organic Chemistry, it is recommended that CY 371 be taken first quarter, CY 372-374 second quarter, and CY 373-375 and CY 331 during the fourth quarter of the first professional year.

OPTIONS IN PHARMACY CURRICULUM

The recommended courses for four fields of desired emphasis or specialization to better prepare the graduate for professional excellence in his area of interest are listed on the following page:

Community Pharmacy		*Credits*
PHY 504	Professional Practice	5
PHY 463	Public Health and Communicable Diseases	4
PHY 533	Pharmaceutical Admin. 1	4
PHY 534	Pharmaceutical Admin. 2	5
PHY 501	Pharmacy Seminar	2
ATG 201	Elementary Financial Accounting	5
Approved Electives		17
		42

Industrial Pharmacy		*Credits*
PHY 407	Manufacturing Pharmacy	4
ISE 301	Ind. & Systems Engineering	2
ISE 470	Operations Research 1	3
ISE 471	Operations Research 2	3
CY 341	Physical Chemistry	3
CY 342-3	Physical Chemistry	4
Approved Electives		23
		42

Hospital Pharmacy		*Credits*
PHY 522	Hospital Pharmacy	3
PHY 504	Professional Practice	5
PHY 407	Manufacturing Pharmacy	4
PHY 653	Parenterals	5
PHY 501	Pharmacy Seminar	2
PHY 582	Body Fluids and Electrolytes	4
Approved Electives		19
		42

Research Pharmacy		*Credits*
MS 302-3-4	Analytic Geometry and Calculus	15
CY 341-2-3	Physical Chemistry	7
or		
CY 451-2-3-4-5	Physical Chemistry	12
PHY 527	Problems in Pharmaceutical Science	
or		
PCY 450	Problems in Pharmaceutical Chemistry	3
Approved Electives		17 or 12
		42

College of Physical Education and Health

GENERAL STATEMENT

The College of Physical Education and Health offers programs of instruction and services under four departments, namely: Intramural Athletics and Recreation, Required Physical Education for Men, Required Physical Education for Women, and The Professional Curriculum.

THE PROFESSIONAL CURRICULUM

The Department of The Professional Curriculum offers programs of study leading to undergraduate degrees in the areas of Physical Education, Health Education, Recreation. Each curriculum is designed to prepare students for particular professional positions. These positions, together with the course requirements for each of the several curricula, are described on the following pages. The requirements of the undergraduate curricula are organized on the basis of the Lower Division and the Upper Division. Basic requirements of each curriculum available to students in the Lower Division are listed in the University College section of this Catalog.

ADMISSION REQUIREMENTS

1. Requirements for students entering The Professional Curriculum of the College of Physical Education and Health from the University College are as follows:

a. Complete the requirements of the University College

b. Complete with a passing grade the following Comprehensive courses: CSS 111-112-113, CPS 121-122, CEH 131-132-133, CLC 141-142, CMS 171, CHN 251-252-253, CBS 261-262-263 and either CPS 123 or CLC 143.

c. Present an academic average of 2.0 covering all work in the Lower Division.

d. Have the approval of the Committee on Admissions of the College of Physical Education and Health. Available evidence as to moral, physical and psychological qualifications for teaching or recreational leadership, as well as academic standing, will be considered by the committee in determining admission to the College.

2. Requirements for transfer students entering from other institutions:

Meet the above requirements or the equivalent, as determined by the Board of University Examiners and have the approval of the Committee on Admissions of the College of Physical Education and Health. Transfer and acceptance of credits from other institutions are handled through the Office of the Registrar.

3. The Committee on Admissions of the College of Physical Education and Health will consider requests for admission from students who do not meet the conditions stated above.

COUNSELING OF STUDENTS

The Department of The Professional Curriculum maintains undergraduate and graduate counseling offices. Cumulative records are kept in these offices so that any student may receive advice on such matters as (1) selection of courses, (2) participation in extracurricular activities, (3) scholastic problems, and (4) developing desirable qualities of leadership and personality. All students planning to pursue any of the curricula offered by the College of Physical Education and Health should avail themselves of this counseling service. Information about the counseling offices can be obtained in Room 302, Florida Gymnasium.

PLACEMENT SERVICE

The College of Physical Education and Health provides a Placement Committee to assist graduates with placement problems. The Committee works closely with the University Placement Center in helping students and graduates secure suitable positions. Those wishing to avail themselves of the services of the Committee can secure information from the Chairman in Room 306, Florida Gymnasium.

TEACHER'S CERTIFICATES

Certification to teach in the schools of Florida is granted by the State Department of Education under regulations established by the State Board of Education. These regulations are fully described in a bulletin issued by the State Department of Education. A copy of the bulletin is available to any student in the office of his advisor. The student is expected to familiarize himself with these requirements.

STUDENT TEACHING AND INTERNSHIP PROGRAM

Students enrolled in Physical Education, Health Education, and Recreation curricula offered in this College are required to register for the appropriate student teaching or internship program for one term during their senior year. They will be expected to live in the community in which they serve their internship or student teaching.

RESEARCH

In order to better carry out its role in research, the College of Physical Education and Health conducts, coordinates, and encourages research through a research committee. This committee is ordinarily composed of staff members actively engaged in research activities. The facilities of the research laboratory are available to faculty and staff members as well as to graduate and undergraduate students in the college. Further information may be obtained from the Chairman, Research Committee, College of Physical Education and Health.

GENERAL REGULATIONS

University Student Regulations: The STUDENT REGULATIONS section of this catalog contains information of essential importance to all students. The regulations cover such points as (1) degree and graduation regulations; (2) maximum and minimum loads; (3) grades and averages; (4) probation, suspension and exclusion for academic reasons; (5) withdrawals; (6) absences *or* unsatisfactory work; (7) classification of students; and (8) petitions and appeals.

Student Responsibility: The student must assume full responsibility for registering for the proper courses and for fulfilling all requirements for his degree. The faculty and the student's advisor will assist and counsel, but the student must take the initiative and assume responsibility for meeting all requirements.

The student's program of studies is subject to the approval of his advisor and the head of the Department of The Professional Curriculum. A student with skill deficiencies may be required to take non-credit courses to remove these deficiencies.

Each student is responsible for completing all courses for which he is registered. Courses can be dropped or changed without penalty only through the approval of the student's advisor.

Seniors must file formal application for degree in the Office of the Registrar and must pay the graduation fee early in the term in which they expect to receive the degree; the calendar in the catalog shows the latest official date on which this can be done.

Student Petitions: If a student believes that the College regulations work a peculiar hardship or injustice in his case, he may petition for waiver of the regulation involved. Information on the procedure to be followed in submitting such petitions may be secured from the student's advisor.

UNDERGRADUATE DEGREES

The College of Physical Education and Health offers three undergraduate degrees: Bachelor of Science in Physical Education, Bachelor of Science in Health Education, and Bachelor of Science in Recreation.

A student is required to complete: (1) one of the curricula offered in this College; (2) 96 quarter hours in the Upper Division with an average of 2.0 or higher; (3) 196 quarter hours for the four-year period with an average of 2.0 or higher; and (4) the course requirements in his major field with an average of 2.0 or higher.

In addition to completing the above requirements the student is expected to participate in extracurricular activities. Experience shows that men and women are called on to perform many and varied services in their respective schools and communities. Participation in extracurricular activities while in college contributes substantially to the success of persons entering the profession. Information concerning this requirement may be secured from the student's advisor.

GRADUATION WITH HONORS AND HIGH HONORS

A student who has completed the work of the Upper Division with a minimum honor point average of 3.3 or higher is eligible for consideration for graduation With Honors or With High Honors. Graduation With Honors or With High Honors is not determined solely on the basis of the Upper Division honor point average. Recommendation of the faculty is necessary. A student may consult his advisor for policies governing faculty recommendations.

GRADUATE DEGREE

Courses are offered by this College in the Graduate School leading to the degree of Master of Physical Education and Health or the degree of Master of Arts in Physical Education and Health. Admission and degree requirements for graduates of accredited institutions are described in the *Graduate School Catalog.*

CURRICULA

I. Curriculum in Physical Education for Men

Leading to the Degree of Bachelor of Science in Physical Education

This curriculum is designed to prepare students (1) to become teachers of physical education in schools and colleges; (2) to coach athletic teams; (3) to become directors of intramural and interscholastic athletic programs; (4) to serve in the school-community recreation program. Since many men are expected to teach more than one subject, the approved elective hours should be used to complete certification requirements in a second teaching field.

Admission: To register for this curriculum students should have completed the following courses while registered in the University College.

PHA 100 Team Sports for Men, 2 credits
PHA 101 Soccer and Related Sports for Men, 2 credits
PHA 126 Swimming, 3 credits
PHA 201 Football Fundamentals, 3 credits
PHA 202 Basketball Fundamentals for Men, 3 credits
PHA 203 Track and Field for Men, 2 credits
PHA 205 Wrestling and Conditioning Programs, 2 credits
PHA 207 Gymnastics for Men, 3 credits.
PHA 224 Golf, 2 credits
PHA 225 Tennis, 2 credits
PHA 261 Individual and Family Health, 5 credits
PHA 266 First Aid and Medical Self-Help, 3 credits

JUNIOR YEAR

First Quarter	*Credits*
PHA 204 Baseball	2
PHA 365 Applied Anatomy	5
PHA 371 Foundations of Physical Education	3
EDF 345 Human Growth and Development	5
Second Teaching Field Electives	2
	17

Second Quarter	*Credits*
PHA 231 Folk and Social Dance	3
PHA 345 Management of Recreation Centers	3
PHA 366 Applied Physiology	5
Second Teaching Field Electives	5
	16

Third Quarter	*Credits*
PHA 373 Physical Education in the Elementary School	3
PHA 375 Adapted Physical Education	2
EDF 320 Social Foundations of Education	5
Second Teaching Field Electives	7
	17

SENIOR YEAR

First Quarter	*Credits*
EDE 400 The Elementary School Today	5
EDS 400 The Secondary School Today	5
Second Teaching Field Electives	8
	18

Second Quarter	*Credits*
PHA 471 Administration of Physical Education and Athletics	5
PHA 473 Physical Education in the Secondary School	5
Second Teaching Field Electives	7
	17

Third Quarter	*Credits*
EDS 405 Student Teaching	16
	16

II. Curriculum in Physical Education for Women

Leading to the Degree of Bachelor of Science in Physical Education

This curriculum is designed to prepare students (1) to become teachers of physical education in schools and colleges; (2) to coach sports; (3) to direct intramural programs; (4) to serve in school-community recreation programs. Since many women are expected to teach more than one subject, the approved elective hours should be used to complete certification requirements in a second teaching field.

Admission: To register for this curriculum students should have completed the following courses while registered in the University College:

PHA 111 Soccer and Related Sports for Women, 2 credits
PHA 113 Track and Field for Women, 2 credits
PHA 114 Softball for Women, 2 credits
PHA 126 Swimming, 3 credits
PHA 210 Volleyball and Field Hockey for Women, 3 credits
PHA 217 Gymnastics for Women, 3 credits
PHA 220 Recreational Sports, 3 credits
PHA 224 Golf, 2 credits
PHA 225 Tennis, 2 credits
PHA 231 Folk and Social Dance, 3 credits
PHA 232 Modern Dance, 3 credits
PHA 261 Individual and Family Health, 5 credits

JUNIOR YEAR

First Quarter	*Credits*
PHA 312 Basketball for Women	2
PHA 365 Applied Anatomy	5
PHA 371 Foundations of Physical Education	3
EDF 345 Human Growth and Development	5
Second Teaching Field Electives	2
	17

Second Quarter	*Credits*
PHA 313 Officiating for Women	2
PHA 266 First Aid and Medical Self-Help	3
PHA 345 Management of Recreation Centers	3
PHA 366 Applied Physiology	5
Second Teaching Field Electives	3
	16

Third Quarter	*Credits*
PHA 332 Dance Composition	2
PHA 373 Physical Education in the Elementary School	3
PHA 375 Adapted Physical Education	2
EDF 320 Social Foundations of Education	5
Second Teaching Field Electives	5
	17

SENIOR YEAR

First Quarter	*Credits*
PHA 331 Teaching Folk and Social Dance	2
EDE 400 The Elementary School Today	5
EDS 400 The Secondary School Today	5
Second Teaching Field Electives	6
	18

Second Quarter	*Credits*
PHA 471 Administration of Physical Education and Athletics	5
PHA 473 Physical Education in the Secondary School	5
Second Teaching Field Electives	7
	17

Third Quarter	*Credits*
EDS 405 Student Teaching	16
	16

III. Curriculum in Health Education

Leading to the Degree of Bachelor of Science in Health Education

This curriculum is designed to prepare students (1) to become teachers of health and related biological sciences; (2) to serve as coordinators of school health education programs; (3) to serve as health educators in state and county health departments or voluntary health agencies; (4) to qualify for entrance into approved schools of public health for graduate work in health education. The broad health education curriculum provides approved elective hours to be used to complete certification requirements in additional health related areas.

Admission: To register for the curriculum students should have completed the following courses while registered in the University College.

MS 101 Elements of Mathematics, 5 credits
MS 102 Algebra and Trigonometry, 5 credits
CY 201 Introductory Chemistry, 4 credits
BTY 180 Introductory Botany, 5 credits
BTY 375 Economic Botany, 3 credits
BCY 300 Bacteria in Everyday Life, 4 credits
ZY 201 General Zoology, 4 credits
SY 201 Principles of Sociology, 4 credits

PHA 261 Individual and Family Health, 5 credits
PHA 262 Community and Environmental Health, 3 credits
PHA 266 First Aid and Medical Self-Help, 3 credits

JUNIOR YEAR

First Quarter	*Credits*
EDF 345 Human Growth and Development	5
HRP 331 Basic Anatomy and Physiology	3
EY 301 Principles of Entomology	4
Approved Electives	4
	16

Second Quarter	*Credits*
PHA 359 School and Community Safety Education	3
GY 109 Elements of Geology	3
PSY 201 General Psychology	4
SY 321 Community Organization	4
Approved Electives	3
	17

Third Quarter	*Credits*
PHA 361 Elementary School Health Program	4
EDF 320 Social Foundations of Education	5
ZY 308 Invertebrate Zoology	5
Approved Electives	3
	17

SENIOR YEAR

First Quarter	*Credits*
EDE 400 The Elementary School Today	5
EDS 400 The Secondary School Today	5
BTY 501 Plant Ecology	5
	15

Second Quarter	*Credits*
PHA 362 Health Education in the Secondary School	4
PHA 461 Field Experience in Public Health	4
EDS 464 Special Methods: Teaching Science in the Secondary School	5
Approved Electives	3
	16

Third Quarter	*Credits*
EDS 405 Student Teaching and Public Health Education	16
	16

IV. Certification in Driver Education and Safety Education

The following courses are provided for those wishing to add Driver and Safety Education to their Florida Teaching Certificate:

PHA 359 School and Community Safety Education, 3 credits
PHA 451 Driver and Traffic Safety Education, 5 credits
PHA 452 Teaching Driver and Traffic Safety Education, 5 credits

V. Curriculum in Recreation
Leading to a Degree of Bachelor of Science in Recreation

This curriculum is designed to prepare students to become leaders or directors of community recreation, industrial recreation, summer camps, playgrounds, youth organizations, hospital recreation, or Air Force and Army recreation activities.

Admission: To register for this curriculum students must have completed the following courses while registered in the University College.

PHA 100 Team Sports for Men, 2 credits
or
PHA 114 Softball for Women, 2 credits
PHA 203 Track and Field for Men, 2 credits
or
PHA 113 Track and Field for Women, 2 credits

PHA 204 Baseball for Men, 2 credits
PHA 220 Recreational Sports, 3 credits
PHA 231 Folk and Social Dance, 3 credits
PHA 245 Leadership in Recreation, 4 credits
MSC 260 Music Skills, 4 credits

JUNIOR YEAR

First Quarter	*Credits*
PHA 344 Social Recreation	3
PHA 224 Golf	2
PHA 312 Basketball (Women)	0-2
EDF 345 Human Growth and Development	5
Electives	7-5
	17

Second Quarter	*Credits*
PHA 225 Tennis	2
PHA 342 Camp Counseling	4
PHA 347 Recreation Programs	4
SCH 339 Dramatics in Education and Recreation	3
SCH 201 Public Speaking	4
	17

Third Quarter	*Credits*
PHA 126 Swimming	3
PHA 345 Management of Rec. Centers	3
SCA 330 Crafts	3
SY 201 Principles of Sociology	4
Electives	3
	16

SENIOR YEAR

First Quarter	*Credits*
PHA 266 First Aid and Med. Self-Help	3
PHA 331 Tchng. Folk and Social Dance	2
PHA 445 Recreation for Special Groups	5
PHA 446 Administration of Recreation	5
Electives	2
	17

Second Quarter	*Credits*
PHA 346 Field Experience in Recreation	4
PHA 373 Physical Education in the Elementary School	3
MSC 366 Music in Field of Recreation	4
Electives	6
	17

Third Quarter	*Credits*
PHA 449 Internship	16
	16

THE PHYSICAL FITNESS AND SPORTS PROGRAM OF THE COLLEGE OF PHYSICAL EDUCATION AND HEALTH

The Required Physical Education for Men and Women

The University Requirement:

Men and women students are required by the University to register for and participate satisfactorily for six quarters of physical education. Men students will complete six quarters of PLM and women students will complete six quarters of PLF in the lower division. The program requirement for transfer students to University College is adjusted on an individual basis by the Chairman of the Department of Required Physical Education for men and women. Students who are 26 years of age or older will not be required to register in the physical education program. Students who are taking only one course will not be required to register for physical education.

The Curriculum for Men:

1. The Regular Program

   A. The Basic Program

   During the first quarter a student shall engage in a program of activities based on physical fitness status. Students with the highest scores on a physical fitness test given at the beginning of the quarter shall have a program of orientation, gymnastics and tumbling, and track and field. Students scoring low on the physical fitness test given at the beginning of the quarter shall have a program of orientation, conditioning, and a team game. Students take a swimming test during the first quarter. If a student fails to pass the test he is advised to enroll in a swimming class.

   B. The Sports Program

   A student shall participate satisfactorily in five quarters of activity while assigned to the sports program. One activity will be taken each quarter, and they must be taken consecutively until the program is completed. The sports in this program include: Casting, Gymnastics, Handball, Lacrosse, Senior Life Saving, Soccer, Social Dance, Special Exercise, Swimming, Tennis, Volleyball, Water Safety Instructors Course, Weight Training, and Wrestling. In certain sports the students may elect to concentrate in one activity. For example, at the present time a student would be able to follow a sequence of swimming, life saving, and water safety instructors course. Also, it is possible for a student to concentrate in golf by taking golf for two consecutive quarters.

2. The Adapted Program

   Students with physical limitations or deviations are assigned to a program of adapted physical education by the Department of Student Health.

The Curriculum for Women:

1. The Regular Program

   A. The Basic Program

   Freshmen students failing the physical fitness test administered during the latter part of the Fall Quarter will be immediately enrolled in the Basic Course during the Winter Quarter. Students who pass the test will be enrolled in the selective Sports Program. The Basic Course includes an orientation to fitness, a circuit designed to promote individual physical fitness, participation in selected fundamental movements, skills and functional health instruction. A swimming test will be given to freshmen students by arrangement within the department during their first year. If the student fails the test, she will be advised to take a swimming course.

   B. The Sports Program

   A student shall pass satisfactorily six quarters of physical education while assigned to the regular program. One activity will be taken each quarter consecutively until the program is completed. The program includes Archery, Basketball, Body Conditioning, Bowling, Casting, Flag Football, Folk Dance, Golf, Modern Dance, Senior Life Saving, Social Dance, Softball, Square Dance, Swimming, Tennis, Volleyball and Water Safety Instruction Course. Students may elect to concentrate in one activity rather than take a different one each quarter. Such activities would include: Bowling, Golf, Modern Dance, Swimming and Tennis.

2. The Adapted Program

   Students with physical limitations are assigned to a program of adapted physical education by the Department of Student Health.

Attendance at Class

The activity courses require regular attendance in order to attain prescribed standards of fitness and skill.

Division of Military Science

The University of Florida offers instruction in the Military Sciences as an integral part of its curricula. The Department of the Army and the Department of the Air Force each maintain a Reserve Officers Training Corps (ROTC) and provide staffs of officers and detachments of enlisted men to provide for the instruction and administration of cadets.

ARMY BASIC COURSE AND AIR FORCE GENERAL MILITARY EDUCATION PROGRAM

The Army Basic Course and the Air Force General Military Course include six quarters of instruction. Non-U.S. citizens must receive departmental approval before enrollment.

Students are issued uniforms and textbooks by the University and are held financially responsible for the care of such property and for its prompt return upon proper call.

STATUS OF STUDENTS WHO HAVE HAD MILITARY TRAINING AT OTHER SCHOOLS

Students transferring from other college level institutions with ROTC units are allowed credit for Military or Aerospace Studies completed at such institutions, up to the amount allowed by the institution from which the transfer is made, provided such credit does not exceed 6 quarter hours for the Army Basic Course or the Air Force General Military Course. A cadet who transfers to another institution where an ROTC detachment of the same service is located, may transfer his membership in the Air Force Professional Officer Course or Army Advanced Course to that detachment. The eligibility for admission of such students to Military Science and Aerospace Studies courses at the University of Florida is determined by the Professor, Military Science or the Professor of Aerospace Studies as appropriate.

DEFERMENT FROM SELECTIVE SERVICE

Within the limitations of assigned quotas, those students enrolled in the Air Force (Army) ROTC who meet academic and other standards may be deferred from Selective Service induction provided they sign the prescribed deferment agreement. Note: Words in parenthesis apply to Army ROTC. This agreement provides that the applicant will complete the General Military (Basic) Course if enrolled therein; will enroll in and complete the Professional Officer (Advanced) Course if accepted therefor; will accept a commission if tendered; and will serve on active duty for a period of not less than four (two) years after receipt of commission, subject to orders of the Secretary of the Air Force (Army) and will continue a member of a Regular or Reserve component of the Air Force (Army) until at earliest the sixth and not later than the eighth anniversary of his receipt of commission. Deferments are terminated for those students who do not continue the course or whose academic work or conduct is such as to warrant the conclusion that they do not have adequate potential for commissioning.

ROTC SCHOLARSHIP PROGRAM

The ROTC Vitalization Act of 1964 provides for College Scholarships to Air Force (Army) cadets. Cadets receiving scholarships are selected on a competitive basis. *Only cadets enrolled in the four year program are eligible for scholarships.* These grants pay the cost of tuition, books, fees, supplies and equipment, plus a monthly subsistence of $50.

UNIFORMS

The Air Force (Army) ROTC uniform is identical to the regulation uniform except for insignia. Air Force (Army) cadets are required to wear the uniform during drill periods.

Newly entering students in the ROTC are issued required uniforms and texts from supply. A deposit of $20.00 is required. The uniforms and texts remain the property of the Air Force (Army) and are returned to supply during quarters of non-attendance, transfer to another institution or upon completion of the General Military (Basic) Course. The full $20.00 deposit, less cost of lost or damaged items of uniforms, will be refunded to the student when he returns the uniform and other issued items.

A cadet entering the Professional Officer (Advanced) Course is issued a new regulation uniform which he retains when he receives his commission.

ARMY ADVANCED COURSE

The general objective of the course of instruction is to provide junior officers who by their education, training, and inherent qualities are suitable for continued development as officers in the United States Army. The aim is to provide a basic military education, and, in conjunction with other college disciplines, to develop individual character and attributes essential to an officer.

The Army Advanced Course includes six quarters of instruction at the University and six-weeks summer camp at a military installation, which normally is attended by the student at the end of his first year's Advanced Course work. Each student applicant for the Advanced Course must have completed the Army ROTC Basic Course, attended a basic ROTC summer camp of six weeks in lieu thereof, or have had previous military training acceptable as a substitute therefor. Final selection of students for the Advanced Course is made by the President of the University and the Professor of Military Science. Flight (pilot) training is available for selected senior cadets.

Students are issued regulation Army uniforms and textbooks. When a student receives his degree and commission, he retains all Advanced Course uniforms issued to him by the University. Each student receives from the United States Government a daily monetary subsistence allowance, presently totaling $50.00 per month, which is paid monthly during the period of enrollment in the Advanced Course for not more than a total of 20 months. Students are paid travel to and from the six-weeks summer camp; while at camp they are provided quarters, rations and uniforms and are paid at the rate of about one half of a Second Lieutenant's pay per month. All students take the General Military Science course. Upon the student's successful completion of the Advanced Course and graduation, the student is commissioned a second lieutenant in the United States Army Reserve in a branch of the Army as determined by a consideration of his choice, his academic major, his aptitude and the needs of the army.

Outstanding Advanced Course students are designated "Distinguished Military Students" and upon graduation from the University are designated "Distinguished Military Graduates." A Distinguished Military Student may apply for appointment as second lieutenant in the Regular Army at any time prior to his designation as "Distinguished Military Graduate." A number of University of Florida graduates accept Regular Army appointments each year.

AIR FORCE OFFICER TRAINING CORPS

The Department of Air Force Aerospace Studies was established to select and prepare students, through a permanent program of instruction, to serve as officers in the Regular and Reserve components of the United States Air Force. The curriculum emphasizes the uniformly high level of military understanding and knowledge required of all Air Force officers.

AFROTC training is divided into two phases: The first two years constitute the General Military Course; the last two the Professional Officer Course. The Department offers a four year and a two year program. Each of these options leads to a

commission in the Air Force. The four year program requires completion of both the General Military Course and Professional Officer Course. Students with prior active military service or previous training at Military schools may, on the basis of their experience, receive a waiver for portions of the General Military Course. The two-year program requires, as a substitute for the General Military course, completion of a six-week Field Training Course at an Air Force Base prior to formal enrollment in the Professional Officer Course. Junior College and other non-ROTC college transfer students with no previous ROTC training, who qualify academically, are eligible for the two year program.

GENERAL MILITARY COURSE

Primarily a study of World Military Systems, the General Military Course is designed to acquaint the student with the causes of world conflict as they affect the security of the United States. It includes an introductory analysis of the military aspects of Democracy and Communism, the United States' power position in World Affairs, and the fundamental aspects of aerospace operations. In addition to exploring western military forces and alliances, it also includes an up-to-date familiarization with the Communist and satellite forces.

THE PROFESSIONAL OFFICER COURSE

Enrollment in the Professional Officer Course is limited to male applicants who demonstrate a high officer potential. Applicant must: (1) be able to fulfill all requirements for a commission prior to his 30th (26½ years if flying applicant) birthday; (2) have two years of academic enrollment remaining in order to obtain a degree; (3) sign a written contract agreeing to complete the course; (4) be a citizen of the United States; (5) pass the Air Force Officers' Qualification Test; (6) pass the Officer physical examination; (7) terminate membership (if member) of any reserve component, enlist in Air Force Reserve (Obligated Reserve Section); and (8) have an academic average of 2.0 or above. Veterans entering the University who desire a commission through AFROTC should contact the Professor of Aerospace Studies prior to registration.

All Professional Officer Course cadets receive subsistence amounting to $50.00 per month for up to 20 months. This is in addition to the pay received for the four week Field Training which is normally accomplished between the junior and senior year. Field Training pay is 50% of the basic pay of a Second Lieutenant. Cadets also receive compensation for travel expenses and are furnished food, housing, uniforms, and medical care while attending Field Training, which is conducted at regularly established Air Force Bases. When the student successfully completes the Professional Officer Course and graduates from the University, he is commissioned a second lieutenant in the United States Air Force Reserve. Normally he will be called to active duty and given an assignment commensurate with his academic major, the needs of the Air Force and his personal desires. The active duty requirement for those who enter and satisfactorily complete pilot training is six years from initial call to active duty. For others, the requirement is four years after initial call to active duty.

Outstanding Professional Officer Course students who are appointed Distinguished Military Graduates are eligible to make application for a Regular Commission.

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University College

CROSS-DEPARTMENTAL

THE SOCIAL SCIENCES

THE PHYSICAL SCIENCES

COMPREHENSIVE ENGLISH

COMPREHENSIVE LOGIC

FUNDAMENTAL MATHEMATICS

THE HUMANITIES

THE BIOLOGICAL SCIENCES

Basic Comprehensive Courses

Cross Departmental

INSTRUCTIONAL STAFF 1969-70

Lambert, R. E., *Chairman;* Cox, M. G.; Lindquist, R. C.; Nelson, C. W.; Sadler, S. G.

UCC 191—CYBERNETICS AND SOCIETY 5 credits

Characteristics and evolution of computer systems, their uses and limitations; practical and philosophical implications for man, social institutions, values, science, the arts. Not designed to train programmers. Not a substitute for any other comprehensive course.

The Social Sciences

INSTRUCTIONAL STAFF 1969-70

Doherty, H. J., *Chairman;* Baringer, W. E.; Beckham, J. C.; Blakey, A. F.; Burns, A.M.; Campbell, L.; Cole, E. H.; Conroy, S. S.; Cox, M. G.; Cripe, J. L.; Doria, R. A.; Doty, F. A.; Doyle, B. B.; Fishpaw, B. V.; Giannini, R.; Glatfelter, R.; Griffis, C.; Hammond, E. A.; Hanna, P. L.; Hoffman, C. A.; Hoffman, G. J.; Jones, B. C.; Kiple, K. F.; Lee, D. B.; Maclachlan, E. S.; McCullen, J. L.; Monsees, C. C.; Monson, R.; Nelson, W. M.; Olliff, D. C.; Osborn, G. C.; Partridge, W. L.; Peek, R. L.; Pleasants, J. M.; Price, W. H.; Proctor, S.; Robinton, W. H.; Schwartz, H. T.; Shenkman, F. A.; Slaughter, J. E.; Smylie, R. F.; Todd, J. R.; Walker, J. E.; Wilcox, E. H.; Wilensky, N. M.; Williams, G. J.; Wilson, H. A.; Wolff, G. E.; Woodruff, W.

CSS 111-112-113—AMERICAN INSTITUTIONS 9 credits

Prerequisite to CSS 112: CS 111; prerequisite to CSS 113: CSS 112. The course, utilizing the culture concept, is designed to develop insight into the origins, history, and nature of contemporary American culture. Primary emphasis is given to the social, economic, and political institutions of the United States, their origins in western Europe, their transfer to colonial America, and their transformation under American conditions.

CSS 115-116—AMERICAN INSTITUTIONS. 10 credits

Prerequisite to CSS 116: CSS 115. An alternative to CSS 111-112-113 having identical course content.

CSS 117-118-119—AMERICAN INSTITUTIONS; COLLEGE HONORS. 9 credits

Content consistent with the goals of CSS 111-112-113 structured to the abilities of qualified students.

CSS 194—AMERICAN INSTITUTIONS SEMINAR. 4 credits

Topics and problems for individual and small group investigation; techniques of research, documentation, reports, critiques. Admission by permission of department chairman. No first-term freshmen may enroll. Not a substitute for CSS 111, 112 or 113 except by permission of the department chairman.

The Physical Sciences

INSTRUCTIONAL STAFF 1969-70

Omer, G. C., *Chairman;* Bieber, J. B.; Bunting, D. C.; Broyles, A. A.; Clark, E. E.; Cohen, H. L.; D'Alli, R. E.; Davis, R. W.; Dunkle, J. R.; Eoff, K. M.; Gleim, J. K.; Helling, J. F.; Knowles, H. L.; Lebo, G.; Lindquist, R. C.; Lynch, M. A.; Marcus,

R. B.; Mundy, B. W.; Nolting, J. P.; Olsson, C. N.; Peterson, L. R.; Pirkle, E. C.; Roberts, L. H.; Sellin, D. L.; Silk, E. S.; Stagat, R. W.; Tunison, P. B.; Yoho, W. H.; Yorton, J. B.

CPS 121-122-123—THE PHYSICAL SCIENCES. 10 credits (4-3-3)

By use of excerpts from original writings, the student is shown how basic concepts in the physical sciences have been developed, and he is given a perspective of the knowledge and insights that science has afforded about the material universe. The integrated subject matter is chosen from all the physical sciences.

CPS 124—LABORATORY IN THE PHYSICAL SCIENCES. 1 credit

Corequisite or prerequisite: any single quarter of CPS 121-122-123. A laboratory inculcating scientific methods of investigation and using selected concepts in the Physical Sciences

CPS 127-128-129—THE PHYSICAL SCIENCES: COLLEGE HONORS 9 credits

Content consistent with the goals of CPS 121-122-123 structured to the abilities of qualified students.

CPS 194—PHYSICAL SCIENCES SEMINAR. 4 credits

Topics and problems for individual and small group investigation; techniques of research, documentation, reports, critiques. Admission by permission of department chairman. No first-term freshmen may enroll. Not a substitute for CPS 121, 122 or 123 except by permission of the department chairman.

Comprehensive English

INSTRUCTIONAL STAFF 1969-70

Hodges, J. R., *Chairman;* Beirne, R. M.; Beyette, T. K.; Billings, C. M.; Block, G. H.; Bloodworth, B. E.; Bowers, R. H., Jr.; Bradshaw, J. P.; Brady, M. V.; Brantley, R. E.; Byron, K. H.; Carnell, C. S.; Childers, W. C.; Cranney, A. G.; Crews, H. E.; Curry, M. L.; Cutler, R. J.; Dage, R. E.; Deakin, M. F.; Dell, Y. C.; Frazer, W. L.; Gehan, F. E.; Gilliland, C. H.; Gowan, S. C.; Graeffe, L. B.; Greenfield, M. T.; Hester, F. D.; Hetrick, L. A., III; Holden, E. S.; Ibarra, E. S.; Jewell, R. B.; Kelly, D. L.; Kemerait, J. P.; Kendall, K. E.; Kirkland, E. C.; Kirkpatrick, M. S.; Langford, A. G.; Larsen, J. S.; Lee, R. C.; Long, S. G.; MacDonald, S. M.; Marinetti, W. T.; McCarthy, K. M.; Meigs, J. A.; Morefield, J. D.; Nadeau, R. L.; Neale, J. R., Jr.; Ormond, W. N.; Paul, G. E.; Penrod, J. A.; Rubrecht, A. W.; Sadler, F. O.; Siegel, J. H.; Stokes, C. F.; Stryker, P. D.; Teahan, J. T.; Thompson, I. S.; Tillman, C. A.; Trueblood, F. M.; Vogel, J. F.; Waldo, T. R.; Walker, B. H.; Warn, M. A.

CEH 131-132-133—COMPREHENSIVE ENGLISH. 9 credits

A first collegiate course in the comprehensive study of language and literature through emphasis on the critical reading of essays, biography, fiction, drama and poetry, and on writing in response to the reading. Selected, varied activities for critical listening and speaking are correlated with the reading and writing.

CEH 134—LANGUAGE AND WRITING. 3 credits

With permission of the Chairman. A study of language principles with concern for their influence on writing.

CEH 135—CONTEMPORARY READING. 3 credits

With permission of the Chairman. A study of selected areas of contemporary thought through the reading of literature with special relevance for our age.

CEH 136—IDEAS AND THEMES IN LITERATURE. 3 credits

With permission of the Chairman. A study of selected ideas and themes from world literature.

CEH 137-138-139—COMPREHENSIVE ENGLISH: COLLEGE HONORS. 9 credits

Content and activities consistent with the goals of CEH 131-132-133 structured to the abilities of qualified students.

CEH 194—COMPREHENSIVE ENGLISH SEMINAR. 4 credits

Topics and problems for individual and small group investigation; techniques of research, documentation, reports, critiques. Admission by permission of department chairman. No first-term freshmen may enroll. Not a substitute for CEH 131, 132 or 133 except by permission of the department chairman.

CEH 231-232-233—COMPREHENSIVE ENGLISH: FOR FOREIGN STUDENTS. 9 credits

A comprehensive course in the use of the English language adapted to the needs of students who study English as a foreign language.

CEH 234—LANGUAGE AND WRITING: FOR FOREIGN STUDENTS. 3 credits

A study of language principles with concern for their influence on writing.

Comprehensive Logic

INSTRUCTIONAL STAFF 1969-70

Moore, W. E., *Chairman;* Baum, J. V.; Bentley, G. R.; Brady, M. V.; Branch, E. B.; Breeze, F. J.; Carter, T. A.; Cates, R.; Christian, M. B.; Corn, M. L.; Dahms, A. M.; Dillon, M. J.; Fisher, B.; Frazer, W. L., Goldstein, A. S.; Goldstein, J.; Haines, L. F.; Hester, F. D.; Jaberg, R.; Kelly, D. L.; Kelly, G. I.; Lee, D. B.; Mable, P.; Marotta, D.; Morefield, J.; Mott, M. M.; Parsons, P.; Sciadini, F.; Smith, K. W.; Standley, G. B.; Thomas, J. G.; Thurston, P. T.; Wolfson, M.

CLC 141-142-143—COMPREHENSIVE LOGIC. 6 credits

Prerequisite to CLC 142, CLC 141; to CLC 143, CLC 141 and CLC 142. A course designed to increase skill in creative and critical thinking. Topics studied include deductive logic, fallacies, statistical concepts, probability theory, techniques of scientific inquiry, aids to creativity, and elements of behavioral science pertinent to decision making. Exercise materials from other comprehensive courses are used for practice in combining ideas from many sources in making complex decisions.

CLC 144-145-146—COMPREHENSIVE LOGIC. 9 credits

Prerequisite to CLC 145, CLC 144; to CLC 146, CLC 145. Limited to freshmen. An expansion of CLC 141-142-143 aimed at maximum development of the student's intellectual potential through added emphasis on behavioral science, laboratory-type practice in application of the procedures of creative and critical thinking to a wider spectrum of problems, and a close relationship between student and teacher.

CLC 147-148-149—COMPREHENSIVE LOGIC: COLLEGE HONORS. 6 credits

Content consistent with the goals of CLC 141-143 structured to the abilities of qualified students.

CLC 194—COMPREHENSIVE LOGIC SEMINAR. 4 credits

Topics and problems for individual and small group investigation; techniques of research, documentation, reports, critiques. Admission by permission of department chairman. No first-term freshmen may enroll. Not a substitute for CLC 141, 142 or 143 except by permission of the department chairman.

Fundamental Mathematics

INSTRUCTIONAL STAFF 1969-70

Bednarek, A. R., *Chairman;* Brechner, B. L.; Elsner, J.; Ganas, P. S.; Gerardo, A.; Hearsey, B. V.; Morse, W. P.; Myers, F. C.; Nelson, C. W.; Rodriguez, R. S.; Sadler, S. G.; Thompson, R. H.

CMS 171—FUNDAMENTAL MATHEMATICS. 4 cred.ts

A general education course which includes the study of the characteristics and the development of particular mathematical systems as well as the fundamental concepts underlying mathematical systems in general.

CMS 194—FUNDAMENTAL MATHEMATICS SEMINAR. 4 credits

Topics and problems for individual and small group investigation; techniques of research, documentation, reports, critiques. Admission by permission of department chairman. No first-term freshmen may enroll. Not a substitute for CMS 171 except by permission of the department chairman.

The Humanities

INSTRUCTIONAL STAFF 1969-70

Derrick, C., *Chairman;* Beirne, R. M.; Beistle, G. M.; Bryan, P. F.; Block, G. H.; Carson, R. E.; Curry, M. L.; Cutler, R. J.; Funk, A. L.; Funkhouser, J. S.; Goldhurst, W.; Gowan, S. C.; Graeffe, A. D.; Haines, L. F.; Hart, T. A. E.; Jaberg, R. L.; Johnson, I.; Kenerson, D. R.; Kniseley, S. P.; Lambert, R. E.; Langford, A. G.; Lewis, A. L.; MacDonald, S. M.; Malvern, M.; Marinetti, W. T.; McCullen, J.; Murray, E. D.; Price, J. W.; Rising, C. L.; Stokes, C. F.; Storer, M. B.; Sugg, R. P.; Sunwall, J. R.; Taylor, F. H.; Teahan, J.; Waldo, T. R.; Welborn, S.

CHN 251-252-253—THE HUMANITIES. 12 credits

A course interrelating selected examples of man's creative achievements in literature, philosophy, art, and music designed to enlarge appreciation and to increase understanding of the nature of man and the values of human life.

CHN 254—NON-WESTERN HUMANITIES. 5 credits

An elective general education course similar in philosophy and purpose to the required Humanities course but based on materials outside western culture. Two versions of the course are offered: Oriental humanities and African humanities. Students may take each version for credit. Not a substitute for CHN 251, 252, or 253.

CHN 257-258-259—THE HUMANITIES: COLLEGE HONORS. 12 credits

Content consistent with the goals of CHN 251-252-253 structured to the abilities of qualified students.

CHN 294—HUMANITIES SEMINAR. 4 credits

Topics and problems for individual and small group investigation; techniques of research, documentation, reports, critiques. Admission by permission of department chairman. No first-term freshmen may enroll. Not a substitute for CHN 251, 252 or 253 except by permission of the department chairman.

The Biological Sciences

INSTRUCTIONAL STAFF 1969-70

Berner, L., *Chairman;* Anderson, J. F.; Brodkorb, P.; Carr, W. E.; Confer, J. L.; Dinsmore, J. J.; Emmel, T. C.; Goin, C. J.; Griffin, D. G.; Griffith, M. M.; Johnson, C. F.; Johnston, D. W.; Kilby, J. D.; Leavitt, B. B.; Lloyd, J. L.; Maslin, P. E.; Maturo, F. J. S.; Mullins, J. T.; Reiskind, J.; Roye, D. B.; Walker, T. J.; Wallbrunn, H. M.; Westfall, M. J.

CBS 261-262-263—THE BIOLOGICAL SCIENCES. 9 credits

The first quarter of this course is designed to develop an understanding of structure, metabolism and reproduction at the cellular and organismal level. The second quarter is concerned with the principles of genetics and evolution. The third quarter em-

phasizes the diversity of life and ecological concepts. Principles treated in both second and third quarters are related specifically to man. The student may begin the course with any one of the three parts.

CBS 264—LABORATORY IN BIOLOGICAL SCIENCES. 1 credit

Corequisite or prerequisite: CBS 261 or equivalent. A laboratory developing the concepts of metabolism and the maintenance of life and designed to accompany CBS 261.

CBS 267-268-269—THE BIOLOGICAL SCIENCES: COLLEGE HONORS. 9 credits

Content consistent with the goals of CBS 261-262-263 structured to the abilities of qualified students.

CBS 294—BIOLOGICAL SCIENCES SEMINAR. 4 credits

Topics and problems for individual and small group investigation; techniques of research, documentation, reports, critiques. Admission by permission of department chairman. No first-term freshman may enroll. Not a substitute for CBS 261, 262, or 263 except by permission of the department chairman.

College of Agriculture

AGRICULTURAL ECONOMICS

AGRICULTURAL AND EXTENSION EDUCATION
(See College of Education)

AGRICULTURAL ENGINEERING
(See College of Engineering)

AGRONOMY

ANIMAL SCIENCES—General and Cross-Departmental Courses

ANIMAL SCIENCE

BACTERIOLOGY

BIOLOGICAL SCIENCES
(See Biological Sciences, Division of)

BOTANY

DAIRY SCIENCE—Manufacturing

DAIRY SCIENCE—Production

ENTOMOLOGY AND NEMATOLOGY

FOOD SCIENCES—General and Cross-Departmental Courses

FOOD SCIENCE

FRUIT CROPS

MECHANIZED AGRICULTURE

ORNAMENTAL HORTICULTURE

PLANT PATHOLOGY

PLANT SCIENCES—General

POULTRY SCIENCE

SOILS

VEGETABLE CROPS

VETERINARY SCIENCE

SCHOOL OF FORESTRY

Agricultural Economics

INSTRUCTIONAL STAFF 1969-70

Tefertiller, K. R., *Chairman;* Alleger, D. E.; Boutwell, W. K.; Brooke, D. L.; Cake, E. W.; Clark, H. B.; Covey, C. D.; Dow, J. K.; Eastwood, R. A.; Eddleman, B. R.; Gibbs, K. C.; Gilbraith, K. M.; Greene, R. E. L.; Greenman, J. R.; Holt, John; Langham, M. R.; Lester, W. B.; Mathis, W. K.; McPherson, W. K.; McPherson, W. W.; Moxley, C. C.; Murphree, C. E.; Myers, L. H.; Pearson, J. L.; Polopolus, Leo; Prato, A. A.; Reynolds, J. R.; Rosenberger, S. E.; Smith, C. N.; Spurlock, A. H.; Tyner, F. H.

AS 301—PRINCIPLES OF AGRICULTURAL ECONOMICS. 5 credits

An introduction to the field of agricultural economics; principles of economics as applied to agriculture; economic problems of the agricultural industry and the individual farmer.

AS 303—AGRICULTURAL ACCOUNTING. 4 credits

Accounting procedures applied to agricultural businesses. Double and single-entry accounting; methods and practice of making farm inventories; keeping financial, feed and crop records; preparing income tax statements.

AS 304—COMPUTERS AND DATA PROCESSING FOR AGRICULTURE. 3 credits

Prerequisite: Consent of instructor. Basic concepts of computer and electronic data processing. Steps in preparing data for analysis and an introduction to the use of the card punch, sorter, reproducing punch, printer, plotter, and intermediate storage devices. The use of general purpose programs and an introduction to the basic concepts of Fortran IV. The course is designed for agricultural students who plan careers in management or research.

AS 305—LAW APPLIED TO AGRICULTURE. 4 credits

How laws are made and the kinds of law. Contracts and real and personal property law and their application to the purchase of property. Landlord-tenant and debtor-creditor relationships. Consideration of farm boundaries, fences, stock laws, inheritance laws, and other laws of special interest to those engaged in farming and related businesses.

AS 310—FARM FIRM MANAGEMENT. 4 credits

Prerequisite: AS 301. Introduction to management principles. Application of economic principles, budgeting, techniques and principles of strategy to agricultural firm management. The causes of success and failure in farming. Planning and execution for successful firm management.

AS 320 MARKETING 5 credits

Prerequisite: AS 301. Basic principles of marketing with emphasis on market functions, services and organization. Elementary price analysis. The role of government and cooperatives in marketing. Problems of cooperatives—reasons for success and failure. One field trip required.

AS 321—MARKETING FRUITS AND VEGETABLES. 3 credits

Prerequisite: AS 320. A comprehensive examination of the economic aspects of assembling, processing, transporting, wholesaling and retailing fruits and vegetables. A two day field trip to observe the practical application of marketing principles is required.

AS 322—MARKETING LIVESTOCK. 3 credits

Prerequisite: AS 320. Economic principles as applied in the marketing of livestock products and livestock including the characteristics of supply and demand, how prices are determined and discovered, the cyclic nature of livestock and meat prices, and the functions and services performed by marketing firms and agencies.

AS 330—AGRICULTURAL FINANCE AND RURAL APPRAISAL. 4 credits
Prerequisite: AS 310. The principles of credit and problems peculiar to financing farmers and farmers' associations. Special attention to modern land appraisal principles and methods. One field trip usually required.

AS 401—AGRICULTURAL ECONOMICS SEMINAR. 1 credit
Prerequisite: Senior classification and AS 301. Lectures and discussions on current problems and special areas of interest in Agricultural Economics. Students make reports on approved topics.

AS 410—FARM BUSINESS ANALYSIS. 4 credits
Prerequisite: AS 301 and consent of instructor. Application of business and economic principles in the successful management of a farm. Obtaining information needed for a farm business analysis, making necessary calculations and use of budgeting to determine adjustments needed in the farm business. At least five different kinds of farms will be analyzed by the students, involving five one-day field trips.

AS 411—MANAGEMENT OF FARMS IN TROPICAL AREAS. 3 credits
Prerequisite: AS 301 and consent of instructor. The principles and analytical techniques applied to the choice of enterprises and factors of production, and management of subsistence and commercial farms in tropical areas. May be substituted for AS 310.

AS 421—TERMINAL MARKETS AND COMMODITY EXCHANGES. 2 credits
Prerequisite: Consent of instructor. Terminal market organization and facilities for agricultural products, including the commodity exchanges. Visitation and inspection of firms and facilities in large terminal markets in the East or Midwest will entail a field trip of from eight to ten days. This field trip will be taken during the interim between the winter and spring Quarters. A fee of $50.00 for a laboratory field trip is required. An additional sum may be required at the time that the trip is made. Participation in this course is contingent upon notifying the instructor of intent not later than 10 days before the beginning of the examination period for the winter Quarter.

AS 422—AGRICULTURAL MARKETING IN THE TROPICS. 3 credits
Prerequisite: AS 320 and consent of instructor. Principles and analytical techniques applied to agricultural marketing in tropical countries. Behavior of supply, demand, and prices and means of improving marketing firms and systems. May be substituted for AS 320.

AS 425—AGRICULTURAL PRICE ANALYSIS AND CONSUMER BEHAVIOR. 4 credits
Prerequisites: AS 301 and ES 302. Major factors affecting agricultural prices; seasonal and cyclical fluctuations; index measures of price and quantity variables; theory and application of consumer behavior principles.

AS 430—LAND ECONOMICS. 4 credits
Prerequisite: ES 302. Principles governing the use of agricultural, forest, range and recreational land in Florida and the Caribbean area with emphasis on supply and demand, location, economic value, tenure, taxation, and conservation. One field trip required.

AS 440—PUBLIC POLICY IN AGRICULTURE. 4 credits
Prerequisite: AS 301 and consent of instructor. A history of farmer attempts and accomplishments through organization and legislation to improve the economic and social status of agriculture. The basic problems and concepts involved in developing and carrying out agricultural policy. Evaluation of present legislative programs and policies affecting the farmer.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

AS 501—SPECIAL TOPICS IN AGRICULTURAL ECONOMICS. 1 to 3 credits*
Maximum 6 credits

Prerequisite: Consent of department. Lectures, conferences or laboratory covering specially selected topics in agricultural economics. May be repeated with change of content.

AS 510—ECONOMICS OF FARM, GROVE AND RANCH MANAGEMENT. 4 credits*

Prerequisite: AS 301 and consent of instructor. Farm planning with emphasis on modern management techniques. Budgeting and linear programming techniques are used to evaluate effects of alternative organizations and production systems on income. Appropriate length of planning periods, kinds of information needed for effective economic analysis, and management strategies that managers should follow to achieve maximum capital accumulation over-time are stressed.

AS 520—MANAGEMENT OF AGRICULTURAL MARKETING FIRMS. 3 credits*

Prerequisite: AS 301 and consent of instructor. Application of firm theory to management decisions. Pricing, advertising, output and inventory policies of the firm under conditions of perfect and imperfect competition are stressed. Organizational and institutional arrangements are analyzed.

AS 521—CASE STUDIES OF AGRICULTURAL MARKETING FIRMS. 3 credits*

Prerequisite: Consent of instructor. Case analysis approach is used to study major problems confronted by the management in marketing firms. Five one-day field trips are required.

AS 522—FIRM EFFICIENCY. 3 credits*

Prerequisite: ES 302. Economic efficiency of plant operation, synthetic cost analysis, systems planning and optimum firm size and location are studied.

AS 530—ECONOMICS OF LAND USE AND DEVELOPMENT PLANNING. 5 credits*

Prerequisite: AS 430 and consent of instructor. Value of land and its role as an economic input and basis for natural resources allocation. Land use conflicts, measures for directing land use, role of individuals, groups and public agencies in land use planning. Economics of resource development and project evaluation.

AS 550—COMPARATIVE AGRICULTURAL SYSTEMS. 3 credits*

Prerequisite: AS 301 and ES 302. An analysis of the ways in which economic activities in agriculture are organized and operated in the principal political and economic systems of the world.

AS 565—ACTIVITY ANALYSIS TO ECONOMIC DECISION PROBLEMS IN AGRICULTURE. 4 credits

Prerequisite: AS 301 or equivalent. Linear programming and problems of agricultural and forestry firms. The application of linear programming methods to problems of planning over time, space and form, with an introduction to game theory, input-output and systems analysis.

AS 566—ELEMENTARY ECONOMETRICS. 3 credits

Prerequisite: AS 301, MS 301 or MS 204, and STA 320. Introduction to econometric approach to problem solving. Major emphasis is placed on applications of the methods to economic problems in agriculture and related industries.

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*Available for graduate major credit.

GRADUATE COURSES

AS 600—SEMINAR IN PHILOSOPHY OF INQUIRY. 1 credit
AS 601—PROCEDURES IN PLANNING AND CONDUCTING RESEARCH. 3 credits
AS 602—PROBLEMS IN AGRICULTURAL ECONOMICS. 1 to 3 credits
AS 610—ECONOMICS OF AGRICULTURAL PRODUCTION. 3 credits
AS 611—ECONOMICS OF AGGREGATE OUTPUT IN AGRICULTURE. 3 credits
AS 612—DYNAMICS OF AGRICULTURAL PRODUCTION AND FIRM GROWTH. 3 credits
AS 620—CONSUMPTION AND DEMAND FOR FARM PRODUCTS AND MARKETING SERVICES. 4 credits
AS 621—INDUSTRIAL ORGANIZATION OF AGRICULTURAL MARKETS. 4 credits
AS 630—NATURAL RESOURCES ECONOMICS. 4 credits
AS 631—LAND TENURE AND TAXATION IN AGRICULTURE. 4 credits
AS 640—FOUNDATIONS OF AGRICULTURAL POLICIES. 3 credits
AS 641—AGRICULTURAL POLICIES AND PROGRAMS IN THE UNITED STATES. 3 credits
AS 644—REGIONAL ECONOMICS FOR RURAL AREAS. 4 credits
AS 645—ECONOMIC DEVELOPMENT AND AGRICULTURE. 5 credits
AS 646—AGRICULTURE'S ROLE IN THE GROWTH OF LATIN AMERICAN NATIONS. 4 credits
AS 650—INTERNATIONAL AGRICULTURAL POLICY AND TRADE. 3 credits
AS 660—NONSTOCHASTIC ECONOMETRIC MODELS. 4 credits
AS 661—ECONOMETRIC METHODS 1. 3 credits
AS 662—ECONOMETRIC METHODS 2. 3 credits
AS 697—SUPERVISED RESEARCH. 1 to 5 credits
AS 698—SUPERVISED TEACHING. 1 to 5 credits
AS 699—MASTER'S RESEARCH. 1 to 15 credits
AS 799—DOCTORAL RESEARCH. 1 to 15 credits

Agricultural and Extension Education

(See College of Education)

Agricultural Engineering

(See College of Engineering)

Agronomy

INSTRUCTIONAL STAFF 1969-70

McCloud, D. E.; *Chairman;* Boyd, F. T.; Clark, F.; Edwardson, J. R.; Hinson, K.; Horner, E. S.; Killinger, G. B.; Mott, G. O.; Norden, A. J.; Pfahler, P. L.; Rodgers, E. G.; Ruelke, O. C.; Schank, S. C.; Schroder, V. N.; Smith, R. L.; Wallace, A. T.; Warmke, H. E.; West, S. H.; Wilcox, M.

AY 301—PRINCIPLES OF AGRONOMY. 3 credits
Introduction to principles of ecology, nutrition, weed science, genetics, cytogenetics, and plant breeding as applied to Agronomic crops.

AY 311—FIELD CROP SCIENCE. 4 credits
Fundamentals of adaptation, improvement, production, and utilization of major field crops.

AY 362—GENETICS. 4 credits
Prerequisites: BTY 181 or ZY 201-202. The science and physical basis of inheritance, genes as units of heredity and development, and the qualitative and quantitative aspects of genetic variation.

AY 363—GENETICS LABORATORY. 1 credit
Prerequisite or corequisite: AY 362. Laboratory methods in the application of genetic principles, with breeding experiment to illustrate the laws of inheritance.

AY 432—FORAGE AND PASTURE SCIENCE. 5 credits
Scientific and technological advances applied to the selection, production, and utilization of forage crops, and the development and management of grazing areas.

AY 465—PLANT BREEDING. 4 credits
Prerequisites: AY 362 and BTY 180. The science and technology of plant improvement.

AY 484—AGRONOMY SEMINAR. 1 credit
Preparation, presentation, discussion of latest Agronomic advances. Required of all students majoring in Plant Science, option in Agronomy.

AY 486—PROBLEMS IS AGRONOMY. 1 to 3 credits. Maximum 6 credits
Prerequisites: Minimum of one course in Agronomy or Plant Science, and consent of instructor. Scientific study of individual problems in crop production, weed control, genetics, or plant breeding.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

AY 513—OILSEED CROPS. 4 credits*
Prerequisites: AY 311, BTY 310, and BTY 370, or equivalent. Economically important oilseed plants with emphasis on characteristics, production practices, physiological and biochemical development, processing, and utilization.

AY 514—FIBER CROPS. 4 credits*
Prerequisites: AY 311 and BTY 310, or equivalent. Characteristics, production practices, physiological development, processing, and utilization of plant fibers having commercial importance in their natural or modified form.

AY 536—TROPICAL PASTURE AND FORAGE SCIENCE. 5 credits*
Prerequisites: AY 432, SLS 525, and AL 527, or consent of instructor. Characteristics and production potential of the natural grasslands of tropical and subtropical regions. Development of improved pastures and forages and their utilization in livestock production.

*Available for graduate major credit.

GRADUATE COURSES

AY 641—CROP NUTRITION. 4 credits
AY 642—BIOCHEMISTRY OF HERBICIDES. 4 credits
AY 644—PHYSIOLOGY OF AGRONOMIC PLANTS. 3 credits
AY 646—CROP ECOLOGY. 5 credits
AY 647—CROP PLANTS IN TROPICAL ENVIRONMENTS. 12 credits
AY 658—POPULATION GENETICS. 3 credits
AY 660—CYTOGENETICS. 5 credits
AY 662—ADVANCED GENETICS. 4 credits
AY 664—TOPICS IN GENETICS. 2 to 4 credits. Maximum 12 credits
AY 665—ADVANCED PLANT BREEDING. 4 credits

AY 682—GENETICS SEMINAR. 1 credit. Maximum 3 credits
AY 684—GRADUATE AGRONOMY SEMINAR. 1 credit. Maximum 3 credits
AY 686—AGRONOMIC PROBLEMS. 1 to 6 credits. Maximum 12 credits
AY 688—TOPICS IN AGRONOMY. 2 to 4 credits. Maximum 12 credits
AY 697—SUPERVISED RESEARCH. 1 to 5 credits
AY 698—SUPERVISED TEACHING. 1 to 5 credits
AY 699—MASTER'S RESEARCH. 1 to 15 credits
AY 799—DOCTORAL RESEARCH. 1 to 15 credits

Animal Sciences—General

GENERAL AND CROSS-DEPARTMENTAL COURSES

T. J. Cunha, *Chairman*

The three Departments of Animal, Poultry and Dairy Sciences have combined their curricula into an Animal Science Curriculum. Following are the general and cross-departmental courses taught by the staff of the three Departments:

ADP 311—INTRODUCTION TO ANIMAL SCIENCE. 5 credits
Market types and classes of livestock; breeds of livestock, dairy and poultry, and the fundamentals of Animal, Dairy and Poultry Science.

ADP 312—FEEDS AND FEEDING. 5 credits
Prerequisite: CY 204 or BTY 370. Composition of plants and animals; feeding standards and rations for farm animals and poultry.

ADP 322—ANIMAL GENETICS. 5 credits
Prerequisite: AY 362. Principles of breeding and genetics applied to animals.

ADP 420—PROBLEMS IN DAIRY, POULTRY AND LABORATORY ANIMAL SCIENCE. 1 to 4 credits variable. Maximum 9 credits
Prerequisite: Permission of instructor. Open only to Dairy, Poultry and Laboratory Animal Science students. Qualified students may choose an approved problem concerning some phase of Dairy, Poultry or Laboratory Animal Science.

ADP 421—SEMINAR. 1 credit
Prerequisite: Senior classification. Preparation and presentation of papers on an approved subject of major interest.

ADP 422—LIVESTOCK, DAIRY AND POULTRY JUDGING. 1 credit. Maximum 3 credits
Prerequisite: ADP 311. Special training in livestock and dairy judging and classification; judging poultry and poultry products.

ADP 435—ARTIFICIAL INSEMINATION, PREGNANCY DIAGNOSIS, AND CONTROL OF REPRODUCTIVE DISEASES. 4 credits
(Identical with VY 435). Prerequisite: VY 321 or consent of instructor. Semen collection, evaluation, processing, storage and insemination procedures. Fetal and uterine growth and pregnancy diagnosis. Reproductive diseases and their control.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ADP 535—ANIMAL PRODUCTION IN THE TROPICS. 4 credits*
Prerequisites: AL 411, AL 413, DY 301 or permission of instructor. Management and environmental factors which affect animal production in the tropics.

*Available for graduate major credit.

Animal Science

INSTRUCTIONAL STAFF 1969-70

Cunha, T. J., *Chairman;* Ammerman, C. B.; Arrington, L. R.; Bazer, F. W.; Carpenter, J. W.; Combs, G. E., Jr.; Davis, G. K.; Feaster, J. P.; Franke, D. E.; Glenn, J. C.; Hentges, J. F., Jr.; Koger, M.; Loggins, P. E.; Moore, J. E.; Palmer, A. Z.; Shirley, R. L.; Wakeman, D. L.; Wallace, H. D.; Warnick, A. C.

AL 309—GENERAL ANIMAL SCIENCE. 4 credits
A terminal course open only to students not majoring in Animal Science. Principles of livestock production.

AL 316—ELEMENTARY LIVESTOCK MANAGEMENT. 3 credits
Only open to students not majoring in Animal Science. Basic livestock management practices of beef cattle, swine and sheep.

AL 332—INTRODUCTORY LABORATORY ANIMAL SCIENCE. 4 credits
Survey of the production and use of various laboratory animal species in research. Characteristics of species, breeding, housing, feeding and general procedures for handling laboratory animals.

AL 411—BEEF CATTLE SCIENCE. 5 credits
Prerequisite: ADP 312 and ADP 322. Application of basic scientific principles in the planning and management of all types of beef cattle enterprises.

AL 413—SWINE PRODUCTION. 3 credits
Prerequisite: ADP 312. Selection, feeding and management of hogs; forage crops and grazing, disease and parasite control.

AL 414—SHEEP PRODUCTION. 2 credits
Prerequisite: ADP 312. Sheep production and management in Florida and the United States, marketing and wool grading.

AL 415—MEATS. 4 credits
Slaughtering, cutting and quality of meat as related to production programs with livestock.

AL 419—HORSE PRODUCTION. 4 credits
General management of light horses and their use.

AL 423—LIVESTOCK AND MEAT EVALUATION. 3 credits
Prerequisite: ADP 311. Classifying, grading and judging carcasses; grading and evaluation of feeder and slaughter animals.

AL 429—MEAT SELECTION AND GRADING.
1 credit. Maximum 3 credits
Fundamentals in grading and classifying carcasses and cuts of meat from beef, pork and lamb. Includes field trips to packing plants and exercises in practical grading and selection.

AL 431—NUTRITION AND FEEDING OF LABORATORY ANIMALS.
4 credits
Prerequisite: AL 332. Nutrient requirements of various laboratory animal species, preparation of normal and special diets, use of purified diet ingredients, methods for feeding under routine and special research conditions.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

AL 527—ANIMAL NUTRITION. 5 credits*

Prerequisite: ADP 312, BTY 370 or permission of instructor. Carbohydrates, fats, proteins, minerals and vitamins and their function in the animal body.

*Available for graduate major credit.

GRADUATE COURSES

AL 602—QUANTITATIVE GENETICS. 5 credits
AL 604—MEAT TECHNOLOGY. 4 credits
AL 605—EXPERIMENTAL TECHNICS AND ANALYTICAL PROCEDURES IN MEAT RESEARCH. 4 credits
AL 607—PHYSIOLOGY OF REPRODUCTION. 4 credits
AL 609—PROBLEMS IN ANIMAL SCIENCE. 1 to 6 credits. Maximum 12
AL 650—ADVANCED METHODS IN NUTRITION TECHNOLOGY. 4 credits
AL 651—ADVANCED ANIMAL NUTRITION. 4 credits
AL 652—ADVANCED ANIMAL NUTRITION LABORATORY. 3 credits
AL 653—VITAMINS. 4 credits
AL 654—LABORATORY IN VITAMINS. 2 credits
AL 655—MINERAL NUTRITION AND METABOLISM. 4 credits
AL 656—RUMINANT PHYSIOLOGY AND METABOLISM. 3 credits
AL 657—NON-RUMINANT METABOLISM. 3 credits
AL 659—GENETICS OF ANIMAL IMPROVEMENT. 4 credits
AL 660—GRADUATE SEMINAR IN ANIMAL SCIENCE. 1 credit
AL 664—TOPICS IN GENETICS. 2 to 4 credits. Maximum 12 credits
AL 697—SUPERVISED RESEARCH. 1 to 5 credits
AL 698—SUPERVISED TEACHING. 1 to 5 credits
AL 699—MASTER'S RESEARCH. 1 to 15 credits
AL 799—DOCTORAL RESEARCH. 1 to 15 credits

Bacteriology

INSTRUCTIONAL STAFF 1969-70

Tyler, M. E., *Chairman;* Bleiweis, A. S.; Chynoweth, D. P.; Duggan, D. E.; Hoffmann, E.M.; Jefferies, M. B.; Nasser, D. S.; Preston, J. F.; Schneider, N. J.; Smith, K. L.; Smith, P. H.

Students desiring a major in bacteriology, either in Agriculture or Arts and Sciences, should consult the departmental advisor as early as possible. Suggested curricula will serve as guides (see programs of study, Agriculture, lower division and Bacteriology, Agriculture, upper division; also B. S. in Biology, College of Arts and Sciences).

BCY 300—MICROBIOLOGY. 5 credits

Prerequisite: CBS 262, CY 201. Microorganisms in relation to evolution and higher organisms; their functions in chemical transformation, food, disease and sanitation. Terminal course, not acceptable for admission to advanced bacteriology courses.

BCY 302—BASIC BIOLOGY OF MICROORGANISMS. 5 credits

Prerequisites: ZY 202, CY 371. Structure, nutrition, and growth of bacteria; characterization of representative bacteria and viruses; metabolic peculiarities, and introduction to genetics and control mechanisms. Laboratory experience in techniques and primary isolation and study. Prerequisite to all advanced courses.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

BCY 505—BASIC IMMUNOLOGY. 4 credits*
Prerequisite: BCY 302. A survey of the cellular and humoral systems involved in the response of vertebrates to foreign substances. Basic techniques of serology.

BCY 506—BACTERIAL PATHOGENS. 5 credits*
Prerequisite: BCY 505. Host-parasite relationships in the diseases of man and animals. The characteristics of bacterial pathogens. Basic techniques of isolation and identification.

BCY 520—PHYSICOCHEMICAL MICROBIOLOGY. 5 credits*
Prerequisites: BCY 302 or equivalent and organic chemistry. Chemistry of microorganisms, nutrition, energy metabolism, metabolic pathways, elements of microbic growth. Selected exercises stressing quantitation of metabolic phenomena.

BCY 521—PHYSICOCHEMICAL MICROBIOLOGY. 5 credits*
Prerequisites: BCY 520 or consent of instructor. Genetic and physiological control of microbic growth. The integration of metabolic processes.

*Available for graduate major credit.

GRADUATE COURSES

BCY 650—PUBLIC HEALTH MICROBIOLOGY. 1 to 6 credits
Maximum 18 credits. Identical with MED 650.
BCY 651—SPECIAL TOPICS IN MICROBIOLOGY. 3 credits
Identical with MED 651. Maximum 6 credits
BCY 652—VIROLOGY. 5 credits
Identical with MED 652.
BCY 653—VIROLOGY LABORATORY. 3 credits
Identical with MED 653.
BCY 654—RESEARCH PLANNING. 5 credits
Identical with MED 654.
BCY 655—EXPERIMENTAL MICROBIOLOGY. 2 to 5 credits; maximum 8 credits
Identical with MED 655.
BCY 656—THE LITERATURE OF MICROBIOLOGY. 3 credits
Identical with MED 656.
BCY 657—MICROBIAL METABOLISM. 5 credits
Identical with MED 657.
BCY 658—MICROBIAL PHYSIOLOGY. 5 credits
Identical with MED 658.
BCY 659—PRINCIPLES OF IMMUNOLOGY. 5 credits
Identical with MED 659.
BCY 660—IMMUNOLOGY LABORATORY. 3 credits
Identical with MED 660.
BCY 661—BIOLOGY OF UNCOMMON MICROORGANISMS. 5 credits
Identical with MED 661.
BCY 662—MICROBIAL GENETICS. 5 credits
Identical with MED 662.
BCY 663—PARASITIC DISEASES OF THE TROPICS AND SUBTROPICS.
Identical with MED 663, VY 663, ZY 663. 5 credits
BCY 664—VIRAL DISEASES. Identical with MED 664 3 credits
BCY 669—SEMINAR. 1 credit
Identical with MED 669.
BCY 697—SUPERVISED RESEARCH. 1 to 5 credits
BCY 698—SUPERVISED TEACHING. 1 to 5 credits
BCY 699—MASTER'S RESEARCH. 1 to 15 credits
BCY 799—DOCTORAL RESEARCH. 1 to 15 credits

Botany

INSTRUCTIONAL STAFF 1969-70

Shanor, L., *Chairman;* Aldrich, H. C.; Anthony, D. S.; Davis, J. S.; Ford, E. S.; Fritz, G. J.; Griffin, D. G., III; Griffith, Mildred; Humphreys, T. E.; Kimbrough, J. W.; Lugo, A. E.; Mullins, J. T.; Rife, D. C.; Smith, R. C.; Stanley, R. G.; Vasil, I. K.; Ward, D. B.

Students planning a major in botany, either in the College of Agriculture or in the College of Arts and Sciences, should consult the departmental advisor as early as possible. The major in botany shall consist of not less than 36 credits, including BTY 310, BTY 342 or BTY 542. The remaining hours of elective for the major will be chosen to meet the particular interest of the student for specialization in botany. Courses are to be selected from among the following: BTY 500, 501, 515, 521, 522, 523, 524, 532, 542, and 551. Majors are required also to present credit for a course with laboratory on the principles of genetics, either AY 362 and AY 363 or ZY 325, a course in organic chemistry, a year of college physics and mathematics through MS 301 or equivalent. Those who are planning to pursue graduate study should include in their program two years of a foreign language. For other degree requirements and programs see Agriculture, Lower Division; Botany; Agriculture, Upper Division; B.S. in Biology, College of Arts and Sciences.

BTY 181—INTRODUCTORY BOTANY. 5 credits

The first quarter of BTY 181-182 sequence. Structures and functions of cells, tissues and organs of flowering plants. Students with credit in CBS 261 or equivalent or ZY 202 may not register in this course for credit but should take BTY 203.

BTY 182—GENERAL BOTANY 3 credits

Prerequisites: BTY 181 or equivalent or grade of *B* or better in CBS 261 & 264. The second quarter of BTY 181-182 sequence. Survey of major plant groups. Emphasis is given to diversity of structure and reproduction and to classification.

BTY 203—GENERAL BOTANY. 5 credits

Prerequisites: CBS 261 or equivalent or ZY 202 or equivalent. Survey of major plant groups with regard to structure, life histories and classification. Students with credit in BTY 181 or 182 may not register in this course for credit.

BTY 310—ELEMENTARY PLANT PHYSIOLOGY. 5 credits

Prerequisites: BTY 182 or BTY 203 or CBS 263 and CBS 264 and CY 204. The chemical organization, cellular organization, metabolism, nutrition and growth of the higher plants.

BTY 342—LOCAL FLORA. 3 credits

Prerequisites: BTY 182 or BTY 203 or CBS 263 and CBS 264. Laboratory observations of the gross features of vascular plants and practice in use of keys to identify plants. Elementary ecology of principal types of plant communities in Northern Florida. Field trips.

BTY 345—WEED IDENTIFICATION. 2 credits

Prerequisite: BTY 182 or BTY 203 or equivalent. The identification of weeds in Florida, their distribution and importance in different areas of the state. (May be taken separately or in conjunction with PLS 442 Weed Control).

BTY 346—POISONOUS PLANTS. 3 credits

Prerequisite: BTY 182 or BTY 203 or equivalent. The identification of plants in Florida toxic to man and animals, the symptoms of their toxicity, and some consideration of treatment.

BTY 370—ELEMENTARY ORGANIC AND BIOLOGICAL CHEMISTRY. 5 credits

Prerequisites: CY 202. Elementary organic chemistry and biochemistry for students

in the agricultural technical curricula. This is a terminal course and is not a part of any sequence of courses in the Chemistry Department.

BTY 375—ECONOMIC BOTANY. 3 credits
Prerequisite: BTY 182 or BTY 203 or CBS 263 and CBS 264. A survey of the products and materials provided by plants that are useful to man. Stress will be on the important families of plants that provide these products and the basic economics of their cultivation, processing and merchandising.

BTY 380—SURVEY OF THE PLANT KINGDOM. 5 credits
Prerequisite: BTY 182 or BTY 203 or CBS 263 and CBS 264. A survey of the major groups of the plant kingdom emphasizing structure and classification; observation of organs and tissues of representative members of each group.

BTY 441—MICROTECHNIQUE. 3 credits
Prerequisite: One year of college biology. Practice in methods of preparing, recording, and illustrating biological materials for microscopic studies.

BTY 471 (Identical with ZY 411)—PREPARATION TO TEACH THE AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES BIOLOGY COURSE. 3 credits
Prerequisite: Certificate to teach high school biology. Lectures, demonstrations, and laboratory exercises designed to prepare high school teachers to use the methods and materials developed by the Biology Curriculum Study Committee of the A.I.B.S.

BTY 472 (Identical with ZY 412)—PREPARATION TO TEACH THE AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES COURSES. 3 credits
Prerequisite: Certificate to teach high school biology. the second half of BTY 471-472.

BTY 499—SPECIAL PROBLEMS IN BOTANY 3 credits
May be repeated for a maximum of 6 credits. Prerequisites: At least twelve hours of botany, and consent of instructor. Qualified students and the instructor choose a particular problem for study.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

BTY 500—PLANT GEOGRAPHY. 4 credits*
Prerequisites: BTY 342 or BTY 182 or BTY 203 or BTY 380 or FY 226. The geography of both the floras and types of vegetation throughout the world with emphasis on problems of the distribution of taxa, and the main factors influencing types of vegetation.

BTY 501—PLANT ECOLOGY. 5 credits*
Prerequisites: BTY 182 or BTY 203 or ZY 202 or equivalent. College Physics, Chemistry, and Calculus are desirable. Principles of ecology as they apply to plants and the ecosystem. Laboratories include the experimental analysis of three types of ecosystems plus class projects.

BTY 515—INTERMEDIATE PLANT PHYSIOLOGY. 5 credits*
Prerequisites: BTY 310 and CY 371-376 or CY 362-363. The fundamental physical and chemical processes underlying the water relations, nutrition, metabolism, growth, and reproduction of higher plants.

BTY 521 (Identical with PT 531)—INTRODUCTORY MYCOLOGY. 5 credits*
Prerequisite: BTY 182 or BTY 203 or BTY 380. The study of fungi, with emphasis on comparative morphology.

*Available for graduate major credit.

BTY 522—PHYCOLOGY. 5 credits*
Prerequisite: BTY 182 or BTY 203 or BTY 380. A study of algae, especially their structure, reproduction, growth, classification and evolution.

BTY 523—MOSSES AND LIVERWORTS. 5 credits*
Prerequisite: BTY 182 or BTY 203 or BTY 380 and senior standing. The morphology of the major groups of bryophytes, with emphasis on collection, identification and ecology of these plants in Florida.

BTY 524—LOWER VASCULAR PLANTS. 3 credits*
Prerequisites: BTY 532, and BTY 342 or BTY 542. Living and fossil representatives of ferns and other vascular cryptogams with emphasis on their structure, evolution, and classification.

BTY 532—PLANT ANATOMY. 5 credits*
Prerequisite: BTY 182 or BTY 203 or BTY 380 or permission of instructor. Origin, structure and functions of principal tissues and organs of seed plants.

BTY 542—TAXONOMY OF SEED PLANTS. 5 credits*
Prerequisite: BTY 182 or BTY 203 or BTY 380 or equivalent. A survey of the kinds of seed plants, their classification, gross morphology and evolutionary relationships.

BTY 551—(Identical with ZY 551)—CYTOLOGY. 5 credits*
Prerequisites: One year of general biology or its equivalent, advanced standing and consent of the instructor. Microscopic components of plant and animal cells. The structure, chemical constitution and function of the cell wall, protoplasm, cytoplasmic constituents and nucleus.

*Available for graduate major credit.

GRADUATE COURSES

BTY 601—VEGETATION OF FLORIDA.	5 credits
BTY 602—ECOLOGY OF AQUATIC PLANTS.	5 credits
BTY 604—VEGETATION OF THE TROPICS.	4 credits
BTY 605—TROPICAL BIOLOGY: AN ECOLOGICAL APPROACH.	12 credits
BTY 607—ADVANCED TROPICAL BOTANY.	12 credits
BTY 611—BIOCHEMISTRY OF TREES.	3 credits
BTY 615—PLANT GROWTH AND DEVELOPMENT.	3 credits
BTY 616—PLANT NUTRITION.	2 credits
BTY 617—PLANT METABOLISM.	3 credits
BTY 618—RADIATION AND PLANT GROWTH.	3 credits
BTY 621—(Identical with PT 631)—ADVANCED MYCOLOGY 1.	4 credits
BTY 622—(Identical with PT 632)—ADVANCED MYCOLOGY 2.	4 credits
BTY 623—(Identical with PT 633)—ADVANCED MYCOLOGY 3.	4 credits
BTY 624—FUNGAL GENETICS.	5 credits
BTY 625—FUNGAL PHYSIOLOGY.	5 credits
BTY 631—DEVELOPMENTAL MORPHOLOGY OF SEED PLANTS.	5 credits
BTY 632—TECHNIQUES IN DEVELOPMENTAL BOTANY.	3 credits
BTY 642—ADVANCED TAXONOMY.	3 credits
BTY 653—ELECTRON MICROSCOPY OF BIOLOGICAL MATERIALS.	2 credits
BTY 654—LABORATORY IN ELECTRON MICROSCOPY.	2 credits
BTY 655—PLANT CYTOLOGY.	5 credits
BTY 656—CYTOCHEMISTRY.	4 credits
BTY 690—PROBLEMS IN BOTANY.	2 to 5 credits. Maximum 9 credits
BTY 692—BOTANY SEMINAR.	1 credit
BTY 695—TOPICS IN BOTANY.	2 credits
BTY 696—TOPICS IN GENETICS.	2 to 4 credits. Maximum 12 credits
BTY 697—SUPERVISED RESEARCH.	1 to 5 credits
BTY 698—SUPERVISED TEACHING.	1 to 5 credits
BTY 699—MASTER'S RESEARCH.	1 to 15 credits
BTY 799—DOCTORAL RESEARCH.	1 to 15 credits

Dairy Science—Manufacturing

INSTRUCTIONAL STAFF 1969-70

Fouts, E. L. *Acting for Chairman;* Krienke, W. A.; Mull, L. E.; Smith, K. L. This staff cooperates in teaching courses in Food Science-General.

DY 401—DAIRY PRODUCTS PROCESSING. 4 credits
Application of heat and refrigeration to processing of milk and dairy products, product movement and packaging, including grading and market classification of dairy products. A study tour of Florida dairy operations required.

DY 402—DAIRY TECHNOLOGY AND TESTING. 5 credits
Detailed composition of milk and dairy products; the effect of thermal, ionic and physical treatments in product quality; and testing procedures.
(For other Dairy Manufacturing related courses, see Food Sciences-General)

GRADUATE COURSES

DY 601—DAIRY SCIENCE RESEARCH TECHNIQUES. 4 credits
DY 602—PROBLEMS IN DAIRY SCIENCE. 1 to 5 credits. Maximum 12 credits
DY 603—GRADUATE SEMINAR IN DAIRY SCIENCE. 1 credit
DY 610—ADVANCED DAIRY TECHNOLOGY. 5 credits
DY 611—ADVANCED DAIRY PRODUCTS PROCESSING. 5 credits
DY 612—ADVANCED DAIRY MICROBIOLOGY. 5 credits
DY 697—SUPERVISED RESEARCH. 1 to 5 credits
DY 698—SUPERVISED TEACHING. 1 to 5 credits
DY 699—MASTER'S RESEARCH. 1 to 15 credits

Dairy Science—Production

INSTRUCTIONAL STAFF 1969-70

Fouts, E. L. *Acting for Chairman;* Head, H. H.; Marshall, S. P.; Thatcher, W. W.; Wilcox, C. J.; Wing, J. M. This staff cooperates in teaching courses in Animal Science—General.

DY 301—DAIRY CATTLE SCIENCE. 4 credits
Prerequisite: Consent of instructor. Use of basic sciences in minimizing physiological and environmental stress in the modern dairy herd.

DY 405—DAIRY CATTLE MANAGEMENT. 3 credits
Prerequisite: DY 301. Application of basic dairy principles to dairy cattle management.

(For other Dairy Production related courses, see Animal Science—General)

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

DY 501 —PHYSIOLOGY OF LACTATION. 5 credits*
Prerequisite: VY 321 and BTY 370. Anatomy and development of the mammary gland; endocrine regulation of mammary growth and milk secretion; the physiology and biochemistry of milk secretion; and factors affecting milk yield and composition.

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*Available for graduate major credit.

GRADUATE COURSES

DY 601—DAIRY SCIENCE RESEARCH TECHNIQUES. 4 credits
DY 602—PROBLEMS IN DAIRY SCIENCE. 1 to 5 credits. Maximum 12 credits
DY 603—GRADUATE SEMINAR IN DAIRY SCIENCE. 1 credit
DY 604—ENDOCRINOLOGY. 4 credits
DY 605—ADVANCED DAIRY CATTLE MANAGEMENT. 4 credits
DY 606—ENERGY METABOLISM. 4 credits
DY 664—TOPICS IN GENETICS. 2 to 4 credits. Maximum 12 credits
DY 697—SUPERVISED RESEARCH. 1 to 5 credits
DY 698—SUPERVISED TEACHING. 1 to 5 credits
DY 699—MASTER'S RESEARCH. 1 to 15 credits

Entomology and Nematology

INSTRUCTIONAL STAFF 1969-70

Eden, W. G., *Chairman;* Blanton, F. S.; Hetrick, L. A.; Kerr, S. H.; Kuitert, L. C.; Lloyd, J. E.; Murphey, M.; Perry, V.G.; Strayer, J.; Waites, R. E.; Walker, T. J.

EY 300—INSECT NATURAL HISTORY. 3 credits

Primarily concerned with insects in their natural environment. Emphasis on insect life and behavioral, morphological, and physiological adaptations. Projects will be geared to the interests of the individual student. Recommended for general students, science majors in Education and High School Biology teachers. Not acceptable toward curriculum requirements in Agriculture.

EY 301—PRINCIPLES OF ENTOMOLOGY. 4 credits

An introduction to ENTOMOLOGY including insect structure, development, classification, and habits. Various approaches to insect control are explored.

EY 303—PRINCIPLES OF NEMATOLOGY. 4 credits

Identical with VY 303 and PT 303. Prerequisite: ZY 201.
An introduction to Nematology including studies of morphology, life histories, and control of the major nematode parasites of plants. Also, studies of the bionomics of certain soil nematodes and nematode parasites of vertebrates and arthropods.

EY 313—SOURCES IN ENTOMOLOGY. 1 credit

Prerequisite or corequisite: EY 301 or EY 303. Introduction to the literature in entomology and nematology.

EY 314—UNDERGRADUATE SEMINAR. 1 credit

Prerequisite: EY 313. Current developments in entomology and nematology. Students appear before the seminar group to present papers on current topics. May be repeated as many as 3 times.

EY 318 (*Identical with ZY 318*)—GENERAL ENTOMOLOGY. 4 credits

Prerequisite: ZY 201, 202 or equivalent. A general course in insect biology that considers phylogeny, anatomy, physiology, ecology and behavior of insects in the context of organic evolution. Emphasis is on processes and principles.

EY 351—FOREST ENTOMOLOGY. 4 credits

Designed for students in the School of Forestry. (Majors in Entomology and other departments may enroll with permission of the Head of the Department at 2-credit level.) Basic Entomology for foresters. Structure, growth, and classification of insects with control considerations. Special emphasis is placed on insect enemies of forest tree species (many of which are also shade trees), and insect pests of forest products.

EY 401—PROBLEMS IN ENTOMOLOGY. 1 to 5 credits
Prerequisite: EY 301 and the basic course in selected field of specialization. Problems in any field of specialization in Entomology or Nematology. May be repeated for a total of 5 credits.

EY 405—INSECTICIDES. 5 credits
Designed for all students in agriculture. Insecticidal chemicals with descriptions, toxicities, uses, limitations, formulations, applications, and their relations to modern insect control. It is recommended that students take EY 301 or its equivalent before enrolling in this course.

EY 408—INSECT MORPHOLOGY 5 credits
Prerequisite: EY 301. Morphology and anatomy of the Hexapoda.

EY 411—APICULTURE. 3 credits
Prerequisite: EY 301 or permission of the instructor. The organization of a bee colony, life processes, races of bees, manipulation, value of colonies, nectar and pollen sources, pollination value, diseases, selection of apiary sites, economic importance of the industry, equipment and marketing of products.

EY 420—MEDICAL & VETERINARY ENTOMOLOGY. 4 credits
Prerequisite: EY 310 or permission of instructor. Arthropods parasitic upon man and animals, their bionomics, classification, distribution, disease relationship and control. Structure, life cycle, distribution, and control of arthropods affecting man and domestic animals. Also recommended for students in Sanitary Engineering, Parasitology and Medicine.

EY 432—FLORIDA FRUIT AND VEGETABLE INSECTS. 4 credits
Prerequisite: EY 301. The identification, bionomics, and control of the major insect pests of Florida's fruit and vegetable crops. Designed for students in Agriculture, especially majors in fruit and vegetable crops.

EY 460—INSECT IDENTIFICATION. 5 credits
Prerequisite: EY 301 or equivalent. Identification of immature and adult insects of all major families.

EY 490—STRUCTURAL PEST CONTROL. 3 credits
Prerequisite or corequisite: EY 301. The major pests encountered by the commercial pest control operator, including life history studies, and chemical and mechanical methods of control.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

EY 518—TROPICAL ENTOMOLOGY. 4 credits*
Prerequisite: EY 301 or equivalent. Biologies, life histories, and various approaches to control of the major agricultural insect and arachnid pests encountered in the tropics.

EY 522—TROPICAL NEMATOLOGY. 5 credits*
Identical with PT 522. Prerequisite: EY 303 or equivalent. Plant parasitic nematodes and the diseases they cause to plants of tropical and sub-tropical areas of the world. Offered in odd years only.

* Available for graduate major credit.

GRADUATE COURSES

EY 603—PROBLEMS IN ENTOMOLOGY. 1 to 5 credits
EY 607—INSECT TAXONOMY. 5 credits

EY 608—COMPARATIVE ANATOMY OF THE HEXAPODA. 5 credits
EY 611—SPECIAL TOPICS IN ENTOMOLOGY AND NEMATOLOGY. 1 credit
EY 612—INSECT PHYSIOLOGY. 5 credits
EY 615—INSECT BEHAVIOR. 5 credits
EY 616—INSECT ECOLOGY. 5 credits
EY 618—INSECT TOXICOLOGY. 5 credits
EY 620—MEDICAL ENTOMOLOGY. 5 credits
EY 621—MOSQUITOES. 5 credits
EY 622—BIOLOGICAL CONTROL OF INSECTS. 4 credits
EY 623—IMMATURE INSECTS. 5 credits
EY 624—ACAROLOGY. 4 credits
EY 625—TECHNIQUES IN MEDICAL ENTOMOLOGY. 5 credits
EY 626—AQUATIC INSECTS. 5 credits
EY 630—PLANT PARASITIC NEMATODES. 5 credits
EY 631—MORPHOLOGY AND PHYSIOLOGY OF NEMATODES. 5 credits
EY 632—TAXONOMY OF NEMATODES. 5 credits
EY 634—RADIATION IN INSECT STUDIES. 5 credits
EY 697—SUPERVISED RESEARCH. 1 to 5 credits
EY 698—SUPERVISED TEACHING. 1 to 5 credits
EY 699—MASTER'S RESEARCH. 1 to 15 credits
EY 799—DOCTORAL RESEARCH. 1 to 15 credits

Food Sciences

General and Cross-Departmental Courses

R. A. Dennison, *Chairman*

The Agricultural Departments with courses related to handling, storage, processing, marketing and utilization of food have combined these offerings into a Food Science Curriculum. Following are the general and cross-departmental courses taught by the staff from several departments.

FS 201—MAN'S FOOD. 2 credits
World population and food problems. Relationship of man's health to production, conservation and consumption patterns.

FS 250—FUNDAMENTALS OF HUMAN NUTRITION. 4 credits
The properties, functions, requirements, interrelationships and metabolism of nutrients. The significance of nutrition during stages of the life cycle, under active and sedentary conditions, under stress, in longevity and for higher levels of mental and physical performance.

FS 401—PHYSICAL PRINCIPLES OF FOOD SCIENCE. 5 credits
Prerequisites: 12 hours of Biology, 12 hours of Chemistry and 6 hours of Physics; Organic Chemistry and Bacteriology recommended. Physical principles of processing and preserving food by cooling, freezing, heating, dehydrating, concentrating, irradiating, fermenting and use of chemicals.

FS 402—CHEMICAL PRINCIPLES OF FOOD SCIENCE. 5 credits
Prerequisite: Organic chemistry. Relationship of composition to properties of foods and the changes which occur during processing, storage and utilization.

FS 403—BIOLOGICAL PRINCIPLES IN FOOD SCIENCE. 5 credits
Prerequisite: BCY 302. Sources of biological contamination and their control during harvesting, handling, processing and storage of foods; food fermentation; hygiene and sanitation; and methods used to examine foods for total microbial content and for specific groups of organisms.

FS 404—ENGINEERING PRINCIPLES OF FOOD SCIENCE. 5 credits
Prerequisites: MS 102 and 5 credits of physics. The functional requirements and principles of operation of systems for handling and processing of food and agricultural products. (Identical with MCA 404)

FS 411—FOOD STANDARDS AND REGULATIONS. 2 credits
Governmental laws and rules regulating food wholesomeness and freedom from disease causing agents; food handling, processing and distribution under sanitary conditions; food ingredients and the labeling of food and food type products.

FS 412—CHEMICAL AND PHYSICAL METHODS OF FOOD ANALYSIS. 5 credits
Prerequisites: FS 402 and 5 credits of physics. Principles and applications of methods for analyzing foods.

FS 414—STATISTICAL QUALITY CONTROL AND SENSORY EVALUATION OF FOODS. 3 credits
Prerequisites: STA 320 and 8 credits of FS 400 level course work. Application of statistics and sensory evaluation to selection of raw products and quality control during processing, storage and marketing.

FS 421—FOOD SCIENCE SEMINAR. 1 credit

FS 451—MEAT AND POULTRY PROCESSING. 4 credits
Prerequisites: CY 202 and MS 102. Methods used for processing and the Federal and State Regulations for meat and poultry products.

FS 452—FRUIT AND VEGETABLE PROCESSING. 4 credits
Prerequisite: CY 203. Principles and application of processing methods for fruits and vegetables and the control of product quality.

FS 453—POULTRY PRODUCTS TECHNOLOGY. 4 credits
Prerequisite: ADP 311. Emphasis on the technological problems that exist between producer and consumer in the production and distribution of poultry and eggs. Egg grading, quality maintenance, chemical changes, nutritive value, and egg products. Poultry processing, tenderness, shelf-life and packaging. One or more field trips to egg and poultry processing operations. (Identical with PY 453)

FS 499—SPECIAL PROBLEMS IN FOOD SCIENCE. 1 to 4 credits
Individual research work in various phases of Food Science.

Food Science

INSTRUCTIONAL STAFF 1969-70

Dennison, R. A., *Chairman;* Ahmed, E. M.; Appledorf, H.; Bates, R. P.; Dougherty, R.; Knapp, F. W.; Koburger, J. A.; Mendenhall, V.; Moye, H. A.; Robbins, R. C.; Thompson, N. P.; Van Middelem, C. H.; Wheeler, W. B. This staff cooperates in teaching courses in Food Science—General.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

FS 501—INSTRUMENTAL ANALYSIS AND SEPARATIONS. 4 credits*
Prerequisite: CY 331. Instrumental analysis and separations techniques in the analysis of foods. Gas chromatography, infra-red spectrophotometry, U.V.-visible spectrophotometry, nuclear methods and chromatographic separations.

FS 502—NUTRITIONAL AND TOXICOLOGICAL ASPECTS OF FOODS. 4 credits*

Prerequisites: FS 250 and BCH 403. Nutrient needs of man, factors affecting the nutrient quality of foods and substances present in foods which may adversely affect the body.

*Available for graduate major credit.

GRADUATE COURSES

FS 600—RESEARCH PLANNING. 2 credits
FS 605—INDUSTRIAL FOOD FERMENTATIONS. 4 credits
FS 606—FOOD PROCESSING SYSTEMS. 4 credits
FS 607—FOOD CHEMISTRY. 4 credits
FS 608—PSYCHOPHYSICAL ASPECTS OF FOODS. 4 credits
FS 621—FOOD PRODUCT DEVELOPMENT. 4 credits
FS 641—ADVANCED HUMAN NUTRITION. 3 credits
FS 642—PROTEINS AND AMINO ACIDS IN NUTRITION. 3 credits
FS 643—NUTRITIONAL ASPECTS OF CARBOHYDRATES AND LIPIDS. 3 credits
FS 651—TOPICS IN FOOD SCIENCE. 1 to 6 credits. Maximum 12 credits
FS 661—FOOD SCIENCE SEMINAR. 1 credit
FS 698—SUPERVISED TEACHING. 1 to 5 credits
FS 697—SUPERVISED RESEARCH 1 to 5 credits
FS 699—MASTER'S RESEARCH. 1 to 15 credits

Fruit Crops

INSTRUCTIONAL STAFF 1969-70

Krezdorn, A. H., *Chairman;* Biggs, R. H.; Buchanan, D. W.; Gerber, J. F.; Sharpe, R. H.; Sherman, W. B.; Sites, J. W.; Soule, J.; Wiltbank, W. J.; Ziegler, L. W.

FC 300—THE CULTIVATION OF CITRUS. 4 credits

Offered only by extension. Not open to students who have had FC 335 or FC 341. Description of the citrus industry and its production practices designed to serve the needs of those who will continue their study in commercial and avocational undertakings or who have other major interests.

FC 335—INTRODUCTION TO CITRUS CULTURE. 4 credits

Prerequisite: BTY 182 or BTY 203. History, botany, varieties, and rootstocks of citrus; soil and climatic requirements.

FC 341—CITRUS GROWING. 4 credits

Prerequisite: BTY 181 or CBS 261-262 or equivalent. Citrus production and methods of culture designed to fill the need of the general student in agriculture.

FC 403—PHYSIOLOGY OF FRUIT PRODUCTION. 5 credits

Prerequisites: PLS 201 and BTY 310. Physiological principles underlying the production of fruit crops.

FC 437—CITRUS MATURITY AND PACKINGHOUSE PROCEDURE. 4 credits

Prerequisite: FC 335 or FC 341. The maturity and grade factors affecting market quality of citrus fruits, the laws regulating the shipping or sale of citrus fruits, and the operation of commercial packinghouses.

FC 441—CITRUS PRODUCTION. 4 credits

Prerequisites or corequisites: FC 335 and FC 403, or permission of instructor. A

study of the various practices which make up the complete Florida citrus production program. Particular attention is given to the scientific foundations of current practices.

FC 442—GROVE OPERATIONS AND MANAGEMENT. 4 credits

Prerequisites: FC 341 or FC 441, or permission of instructor. A course designed to present means of implementation of agricultural programs based upon the latest scientific findings and the changing economic trends. Attention will be given to the responsibilities of owner and manager, and the direction and supervision of operations. Proper record maintenance will be discussed.

FC 449—A STUDY OF CURRENT CITRUS RESEARCH IN FLORIDA. 6 credits

Prerequisite: FC 335 or FC 341. A comprehensive survey of research being conducted in the several areas of citrus production at the Citrus Experiment Station at Lake Alfred. Students will be in residence at the Citrus Station for 5 weeks.

FC 450—FRUIT CROPS LABORATORY 1. 2 credits

Prerequisite: FC 335 or FC 341. Diagnosis of orchard problems and the use of equipment for plant protection.

FC 451—FRUIT CROPS LABORATORY 2. 2 credits

Prerequisite: FC 335 or FC 341. Relation of morphological characteristics of fruit plants and chemical leaf analysis to cultural practices.

FC 499—SPECIAL PROBLEMS IN FRUIT CROPS. 1 to 3 credits

Maximum of 9 credits with consent of instructor. Open to seniors on consent of instructor.

(For additional courses related to Fruit Crops—See Plant Science)

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

FC 523—MAJOR TROPICAL FRUITS. 4 credits*

Prerequisite: Permission of instructor. The botanical and horticultural characteristics and cultural problems of tropical fruits, with emphasis on those of major importance to Florida.

FC 524—MINOR TROPICAL AND SUBTROPICAL FRUITS. 4 credits*

Prerequisite: Permission of instructor. The botanical and horticultural characteristics and cultural problems of tropical fruits, with emphasis on those of major world importance but of restricted culture in Florida.

*Available for graduate major credit.

GRADUATE COURSES

FC 601—FRUIT CROPS SEMINAR. 1 credit
FC 602—PHYSIOLOGY OF FRUIT CROPS. 5 credits
FC 603—MORPHOLOGY OF FRUIT CROPS. 3 credits
FC 604—TAXONOMY OF FRUIT CROPS. 3 credits
FC 605—BREEDING OF FRUIT CROPS. 4 credits
FC 606—ROOTSTOCK-SCION RELATIONSHIPS. 4 credits
FC 610—CITRICULTURE. 5 credits
FC 611—CITRUS PRODUCTION MANAGEMENT. 5 credits
FC 615—AGRICULTURAL METEOROLOGY. 5 credits
FC 620—RESEARCH METHODS IN FRUIT CROPS. 4 credits
FC 621—ENVIRONMENTAL MEASUREMENTS. 5 credits
FC 640—TOPICS IN FRUIT CROPS. 2 to 4 credits. Maximum of 8 credits
FC 670—NON-THESIS RESEARCH METHODS IN FRUIT CROPS. 1 to 9 credits Maximum of 9 credits

FC 697—SUPERVISED RESEARCH. 1 to 5 credits
FC 698—SUPERVISED TEACHING. 1 to 5 credits
FC 699—MASTER'S RESEARCH. 1 to 15 credits
FC 799—DOCTORAL RESEARCH. 1 to 15 credits

Mechanized Agriculture

(Administered by the Department of Agricultural Engineering)

MCA 301—AGRICULTURAL WATER MANAGEMENT. 4 credits
Prerequisite: SLS 330. The fundamental principles of and the need for water management in modern agricultural production.

MCA 303—AGRICULTURAL MECHANICS 1. 4 credits
Basic principles and development of manual and managerial skills in relation to hand and power tools in construction, repair, and maintenance of agricultural machines and equipment.

MCA 306—FARM MACHINERY. 4 credits
The functional requirements, operating principles, performance, safety, and economic application of agricultural field machines and mechanized systems of production.

MCA 401—FARM BUILDINGS. 4 credits
Prerequisite: Upper Division classification. Farmstead and farm service building planning, construction materials, structural requirements, environmental control and applications to specific livestock production and crop storage systems.

MCA 404—ENGINEERING PRINCIPLES OF FOOD SCIENCE 1. 5 credits
Prerequisites: MS 102 and five credits of physics. (Identical with FS 404). The functional requirements and principles of operation of systems for the handling and processing of food and agricultural products.

MCA 407—AGRICULTURAL MECHANICS 2. 5 credits
Prerequisites: MCA 303 and upper division classification. Principles, practices, and decision making in construction, selection, operation, and maintenance of agricultural machines, buildings, and utilities.

Ornamental Horticulture

INSTRUCTIONAL STAFF 1969-70

Roberts, E. C., *Chairman;* Dickey, R. D.; Horn, G. C.; Joiner, J. N.; Sheehan, T. J.; Whitcomb, C. E.

OH 331—FUNDAMENTALS OF ORNAMENTAL PLANT CLASSIFICATION. 4 credits
Prerequisite: BTY 182, PLS 201 or permission of the instructor. A study of the classification and identification of ornamental plants by floral and vegetative characteristics. Introduction to their use, growth characteristics and culture in various landscape situations.

OH 332—IDENTIFICATION OF BASIC ORNAMENTAL PLANTS. 4 credits
Prerequisite: OH 331 or permission of the instructor. Identification, growth characteristics, culture and use of common landscape plants. Materials include basic trees, palms, shrubs, vines and ground covers utilized in general landscape beautification.

OH 333—HERBACEOUS AND EXOTIC PLANT MATERIALS. 4 credits

Prerequisite: OH 331 or permission of the instructor. Herbaceous, semi-herbaceous, exotic and unusual woody plant materials suitable for specialized landscape and interior decorative purposes. Materials include annuals, perennials, foliage plants and succulents.

OH 362—LANDSCAPE AND RECREATIONAL TURF MANAGEMENT. 3 credits

Prerequisite: BTY 182. Comparisons of southern turfgrasses and their landscape and recreational uses. Study of growth characteristics, methods of propagation and management requirements of these grasses, including control of important disease, insect and weed pests. For non-majors only.

OH 363—GROUNDS MAINTENANCE. Identical with LAE 363 4 credits

Prerequisite: OH 332. Basic principles of landscape horticulture are reviewed in lecture sessions and design plans and real situations are analyzed in the laboratory. Both preventive and normal maintenance measures are considered. This course provides a comprehensive survey of landscape maintenance problems with emphasis on home, institutional and public areas for students interested in landscape design.

OH 364—RELATIONSHIPS OF ORNAMENTAL PLANTS TO THE URBAN ENVIRONMENT. 3 credits

To provide the student with a basic appreciation and elementary understanding of the complex man-made environmental situations influencing ornamental plants.

OH 403—ORNAMENTAL HORTICULTURE SEMINAR. 1 credit

Selected reading, reports and discussion of current literature on ornamental horticultural topics. Emphasis is placed on various means of communication as an aid in understanding and evaluating technical information.

OH 420—PRINCIPLES OF NURSERY OPERATIONS. 4 credits

Prerequisite: PLS 301. Principles and practices of nursery operation; including a study of factors influencing the growth, maintenance and marketing of container and field grown woody ornamental plants and the preparation of nursery layout plans.

OH 421—ARBORICULTURE. 3 credits

Prerequisites: BTY 310, SLS 330, and OH 331 or with permission of instructor. Principles and practices of planting, establishing and maintaining woody ornamental trees and shrubs.

OH 441—PHYSIOLOGICAL ASPECTS OF ORNAMENTAL PLANT PRODUCTION. 4 credits

Prerequisites: BTY 310 and PLS 201. Physiological and environmental factors affecting growth and yield of ornamental crops. Greenhouse and field production are both considered.

OH 442—CUT FLOWER PRODUCTION. 3 credits

Prerequisite: OH 441. Production, handling and marketing of major and potential floricultural crops in Florida and the southeast.

OH 443—PRODUCTION OF FOLIAGE, FERN, AND POTTED PLANTS. 3 credits

Prerequisite: OH 441. Production, handling, and marketing of foliage, fern and potted plants in Florida and the south.

OH 462—MANAGEMENT OF SOUTHERN TURFGRASSES. 4 credits

Prerequisites: BTY 310 and PLS 201. Size and scope of the Florida turfgrass industry, and basic aspects of adaptation, planting, establishment, and maintenance of southern turfgrasses are included in lecture and laboratory sessions. The care and operation of turf maintenance machinery is demonstrated.

OH 463—PHYSIOLOGY OF CLOSELY CLIPPED GRASSES. 3 credits

Prerequisite: OH 462. Basic concepts concerning management of turfgrasses, including soils, fertilization, water relations, and pest control practices. Essential information in trouble shooting and formulation of specific recommendations is provided.

OH 499—SPECIAL TOPICS AND INDEPENDENT STUDY IN ORNAMENTAL HORTICULTURE. 4 hours required for majors 1 to 8 credits

Four sections of topics for independent study are offered: A—Research investigation including review of literature, drafting of a proposal, conduct of an experiment, collection of data, summation and interpretation of results and preparation of a report. B—A report on placement training analysis to relate technical information from university classes with practical production and management operations in the field. C—Library or Studio Assignment, including analysis of several sources of information on a specific topic with a written evaluation and list of conclusions prepared. D—Advanced undergraduate research consisting of a continuation of experience in research with a specific plant commodity and conducted as in section A.

LAE 353 may be taken for OH major credit.

(For additional courses related to Ornamental Horticulture—see Plant Science.)

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

OH 511—ORCHIDOLOGY. 4 credits*

Prerequisite: OH 441. The principles and practices involved in the production of orchid plants and flowers including nomenclature, breeding, seed culture, harvesting and handling.

*Available for graduate major credit.

GRADUATE COURSES

OH 603—GRADUATE SEMINAR. 1 credit
OH 612—NUTRITION OF ORNAMENTAL PLANTS. 5 credits
OH 620—NURSERY PRODUCTION AND MANAGEMENT. 4 credits
OH 630—RESEARCH METHODS IN ORNAMENTAL HORTICULTURE. 4 credits
OH 641—FLORICULTURAL SCIENCE. 4 credits
OH 662—RESEARCH AND DEVELOPMENT IN TURFGRASS TECHNOLOGY. 4 credits
OH 670—NON-THESIS RESEARCH IN ORNAMENTAL HORTICULTURE. 1 to 9 credits
OH 697—SUPERVISED RESEARCH. 1 to 5 credits
OH 698—SUPERVISED TEACHING. 1 to 5 credits
OH 699—MASTER'S RESEARCH. 1 to 15 credits

Plant Pathology

Purdy, L. H., *Chairman;* Bartz, J. A.; Cook, A. A.; Decker, P.; Dickson, D. W.; Freeman, T. E.; Hiebert, E.; Kimbrough, J. W.; Luke, H. H.; Miller, C. R.; Miller, H. N.; Mullin, R. S.; Perry, V. G.; Purcifull, D. E.; Roberts, D. A.; Schenck, N. C.; Schmidt, R. A.; Stall, R. E.; Zettler, F. W.

PT 301—LECTURES IN BASIC PLANT PATHOLOGY. Identical with FY 301. 2 credits

Prerequisite: BTY 181; BTY 182 recommended. Principles of Plant Disease. Reasons for many victories and a few defeats in the continuing war on disease in plants.

PT 303—PRINCIPLES OF NEMATOLOGY. Identical with EY 303 and VY 303. 4 credits

Prerequisite: ZY 181. An introduction to Nematology including studies of morphology, life histories, and control of the major nematode parasites of plants. Also, studies of the bionomics of certain soil nematodes and nematode parasites of vertebrates and arthropods.

PT 311—LABORATORY IN BASIC PLANT PATHOLOGY. 3 credits

Prerequisite or corequisite: PT 301. Diseases that dramatize the laws of Plant Pathology.

PT 312—LABORATORY IN TROPICAL PLANT PATHOLOGY. 3 credits

Prerequisite or corequisite: PT 301. The study of economically important diseases of plants grown commercially in the Torrid Zone.

PT 313—LABORATORY IN FOREST PATHOLOGY. Identical with FY 313. 3 credits

Prerequisite or corequisite: PT 301. Diagnosis, etiology, epidemiology, and control of important diseases of forest trees.

PT 401—BIOLOGY OF PLANT INFECTIONS. 5 credits

Prerequisite: BTY 181; BTY 182 recommended. Ugly form and disturbed function in diseased plants.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

PT 500—PROBLEMS IN PLANT PATHOLOGY. 1 to 3 credits*

Prerequisite: PT 301. Individual study and research in areas of special interest to students whose major or minor field is Plant Pathology.

PT 501—INTERMEDIATE PLANT PATHOLOGY. 5 credits*

Prerequisite: PT 301. The lives and times of ten destructive plant parasites.

PT 502—PRINCIPLES OF PLANT DISEASE CONTROL. 3 credits*

Prerequisite: PT 301. The principles of Plant Pathology as they apply to the problems of commercial control of economically important diseases of agronomic, fruit, ornamental, and vegetable crops.

PT 522—TROPICAL NEMATOLOGY. Identical with EY 522. 5 credits*

Prerequisite: PT 303 or its equivalent. Plant parasitic nematodes and the diseases they cause to plants of tropical and sub-tropical regions of the world.

PT 531—INTRODUCTORY MYCOLOGY. 5 credits*

Prerequisite: BTY 182. The study of fungi, with emphasis on comparative morphology.

PT 540—TRANSMISSION OF PLANT PATHOGENS BY VECTORS. 3 credits*

Prerequisites: PT 301; EY 301, and consent of instructor. Principles regarding the transmission process of viral, fungal, and bacterial plant pathogens by arthropods, nematodes, and fungi. Field and laboratory techniques are included.

PT 541—TROPICAL PLANT PATHOLOGY. 4 credits*

Prerequisite: PT 301 or equivalent and consent of instructor. A study of the application of plant pathological techniques to disease control in tropical climates.

*Available for major graduate credits.

GRADUATE COURSES

PT 600—COLLOQUIUM IN PRINCIPLES OF PLANT PATHOLOGY. 1 credit
PT 611—PLANT VIROLOGY LECTURE. 3 credits
PT 612—PLANT VIROLOGY LABORATORY. 2 credits

PT 621—BACTERIAL PLANT PATHOGENS.	5 credits
PT 623—FUNGAL PLANT PATHOGENESIS.	5 credits
PT 625—PHYSIOLOGY OF PARASITISM.	5 credits
PT 627—EPIDEMIOLOGY OF PLANT DISEASE.	3 credits
PT 629—PATHOGEN VARIABILITY AND HOST RESISTANCE.	5 credits
PT 630—PLANT PARASITIC NEMATODES.	5 credits
PT 631—ADVANCED MYCOLOGY 1.	4 credits
PT 632—ADVANCED MYCOLOGY 2.	4 credits
PT 633—ADVANCED MYCOLOGY 3.	4 credits
PT 650—SEMINAR IN PLANT PATHOLOGY.	1 credit
PT 690—PROBLEMS IN PLANT PATHOLOGY.	1 to 5 credits
PT 697—SUPERVISED RESEARCH.	1 to 5 credits
PT 698—SUPERVISED TEACHING.	1 to 5 credits
PT 699—MASTER'S RESEARCH.	1 to 15 credits
PT 799—DOCTORAL RESEARCH.	1 to 15 credits

Plant Sciences—General

GENERAL AND CROSS-DEPARTMENTAL COURSES

A. H. Krezdorn, *Chairman*

The four Departments of Agronomy, Fruit Crops, Ornamental Horticulture and Vegetable Crops have a combined curriculum. Following are the general and cross-departmental courses taught by the staff of the four departments.

PLS 201—FUNDAMENTALS OF CROP PRODUCTION. 4 credits
Prerequisites: BTY 182 or BTY 203. Fundamental principles and practices used in the production, improvement and use of commercial crops.

PLS 301—PLANT PROPAGATION. 4 credits
Prerequisite: PLS 201. Principles, practices and physiological aspects of the propagation of horticultural and agronomic crops by cuttage, graftage, seedage and other methods.

PLS 302—PLANT SCIENCE OPERATIONS. 1 credit
Prerequisite: PLS 201 or permission of the instructor. An opportunity for the student to make an extensive evaluation of the application of scientific principles within the several specialized fields of plant science. Representative areas of production will be visited in a 4-5 day field trip taken during the interim between quarter terms. Registration must follow completion of trip.

PLS 442—WEED CONTROL. 3 credits
Prerequisities: BTY 310 and CY 362 or equivalent. Chemical, biological, and mechanical weed control; weed identification and characteristics of herbicides.

PLS 452—FIELD PLOT TECHNIQUES. 3 credits
Techniques and procedures employed in field plot, greenhouse and laboratory research. Interpretation and disposition of research results.

Poultry Science

INSTRUCTIONAL STAFF 1969-70

Harms, R. H., *Chairman;* Damron, B. L.; Douglas, C. R.; Fry, J. L.; Voitle, R. A.; Wilson, H. R.

PY 312—INCUBATION, BROODING AND REARING. 4 credits
Embryology of the chick; different types of hatchery equipment; incubation prin-

ciples and practices; brooding equipment; methods of brooding chicks; rearing pullets; and caponizing. Chick sexing and judging. One or more field trips to hatcheries, broiler plants and poultry farms required.

PY 415—POULTRY SCIENCE. 4 credits

Prerequisite: ADP 311. Poultry farming; farm layouts, investments, cost and returns in broiler production, egg production and hatchery operation.

PY 453—POULTRY PRODUCTS TECHNOLOGY. 4 credits

Prerequisite: ADP 311 (Identical with FS 453). The technological problems that exist between producer and consumer in the production and distribution of poultry and eggs. Egg grading, quality maintenance, chemical changes, nutritive value, and egg products. Poultry processing, tenderness, shelf-life and packaging. One or more field trips to egg and poultry processing operations.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

PY 514—POULTRY NUTRITION. 4 credits*

Prerequisite: ADP 312. Nutritive requirements. Feed formulation, economics and systems of feeding poultry. Production of various vitamin and mineral deficiencies in the laboratories.

PY 522—POULTRY BREEDING. 3 credits*

Prerequisite: ADP 322. Genetic characteristics, breeds and principles of applied poultry breeding.

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*Available for graduate major credit

GRADUATE COURSES

PY 607—TOPICS IN POULTRY PRODUCTION. 2 to 3 credits. Maximum 9 credits
PY 612—ADVANCED AVIAN PHYSIOLOGY. 3 to 5 credits. Maximum 5 credits
PY 614—ADVANCED POULTRY NUTRITION. 2 to 5 credits. Maximum 5 credits
PY 617—PROBLEMS IN EGG AND POULTRY MEAT TECHNOLOGY. 2 to 5 credits. Maximum 5 credits
PY 631—ADVANCED POULTRY MANAGEMENT. 4 credits
PY 660—GRADUATE SEMINAR IN POULTRY SCIENCE. 1 credit Maximum 3 credits
PY 664—TOPICS IN GENETICS. 2 to 4 credits. Maximum 12 credits
PY 670—ADVANCED PROBLEMS IN POULTRY PRODUCTION. 1 to 4 credits Maximum 12 credits
PY 697—SUPERVISED RESEARCH. 1 to 5 credits
PY 698—SUPERVISED TEACHING. 1 to 5 credits
PY 699—MASTER'S RESEARCH. 1 to 15 credits

Soils

INSTRUCTIONAL STAFF 1969-70

Eno, C. F., *Chairman;* Blue, W. G.; Breland, H. L.; Caldwell, R. E.; Carlisle, V. W.; Edson, S. N.; Fiskell, J. G. A.; Gammon, N., Jr.; Hammond, L. C.; Hubbell, D. H.; Mansell, R S.; Popenoe, H. L.; Pritchett, W. L.; Robertson, W. K.; Rothwell, D. F.; Spinks, D. O.; Thornton, G. D.; Volk, G. M.

SLS 325—TROPICAL SOILS AND THEIR ENVIRONMENT. 4 credits
Soils in relation to tropical ecology and land management systems in agricultural development. For students who desire a cultural understanding of tropical agriculture. Not available for major credit.

SLS 330—GENERAL SOILS. 5 credits
Prerequisites: CY 201. Fundamentals of soil science emphasizing the physical, chemical, and biological properties in relation to plant growth.

SLS 421—SOIL CHEMISTRY. 4 credits
Prerequisites: SLS 330 and CY 203. Fundamental relationships of the soil chemical factors and plant growth. The effect of organic matter, soil colloids, cation exchange, acidity, and liming on plant nutrient availability.

SLS 422—SOIL MICROBIOLOGY. 4 credits
Prerequisites: SLS 330 and BCY 300. Occurrence and activities of soil microorganisms and their influence on soil productivity.

SLS 423—SOIL GENESIS AND CLASSIFICATION. 3 credits
Prerequisites: SLS 330 and GY 201. Genesis and classification of important soils of Florida and the United States. Field trips required.

SLS 424—SOIL PHYSICS. 4 credits
Prerequisites: SLS 330. Physical properties of soils as related to use, emphasizing plant growth.

SLS 426—FERTILIZERS AND ASSOCIATED SOIL REACTIONS. 4 credits
Prerequisite: SLS 330. Formulation, manufacture, and use of commercial fertilizers with reference to economical aspects, methods of application, and effects on soil reactions.

SLS 427—SOILS OF FLORIDA. 3 credits
Prerequisite: SLS 330. Florida soils emphasizing their differentiating profile characteristics and distribution in relation to their use for agricultural, engineering, and urban development.

SLS 428—SOIL SURVEY. 3 credits
Prerequisite: SLS 330. Soil surveys, soil maps, and survey reports. Detailed survey and mapping of an assigned area.

SLS 430—INDIVIDUAL WORK. 1 to 3 credits. Maximum 3 credits
Prerequisites: 8 credits of soils and permission of the instructor. Selected topics for qualified students.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

SLS 525—TROPICAL SOILS. 3 credits*
Prerequisites: SLS 330 and SLS 421. The characteristics of tropical soils emphasizing properties and processes which are in contrast to those of other areas.

*Available for graduate major credit.

GRADUATE COURSES

SLS 600—TOPICS IN SOILS. 3 credits. Maximum 6 credits
SLS 621—SOIL CHEMISTRY. 5 credits
SLS 622—SOIL MICROBIOLOGY. 4 credits
SLS 623—SOIL GENESIS AND CLASSIFICATION. 3 credits
SLS 624—SOIL PHYSICS. 4 credits

SLS 626—SOIL FERTILITY. 4 credits
SLS 627—LABORATORY METHODS OF SOIL CHEMICAL ANALYSES. 4 credits
SLS 651—SEMINAR. 0 to 1 credit. Maximum 4 credits
SLS 670—NON-THESIS RESEARCH. 0 to 6 credits. Maximum 9 credits
SLS 697—SUPERVISED RESEARCH. 1 to 5 credits
SLS 698—SUPERVISED TEACHING. 1 to 5 credits
SLS 699—MASTER'S RESEARCH. 1 to 15 credits
SLS 799—DOCTORAL RESEARCH. 1 to 15 credits

Vegetable Crops

INSTRUCTIONAL STAFF 1969-70

Marlowe, G. A., Jr., *Chairman;* Gull, D. D.; Hall, C. B.; Halsey, L. H.; Locascio, S. J.; Lorz, A. P.; Nettles, V. F.; Showalter, R. K.; Thompson, B. D.

VC 405—PHYSIOLOGY OF HERBACEOUS CROPS. 4 credits
Prerequisites or corequisites: PLS 201, BTY 310. Physiological principles underlying the production of vegetable crops.

VC 411—COMMERCIAL VEGETABLE CROPS. 4 credits
Prerequisite: PLS 201. Introduction to vegetable industry in Florida and the United States. The application of scientific principles in the successful production of vegetables, with emphasis on warm-season crops.

VC 412—COMMERCIAL VEGETABLE CROPS. 4 credits
Prerequisite: PLS 201. The application of scientific principles in the successful production of vegetables, with emphasis on cool-season crops.

VC 499—TOPICS IN VEGETABLE CROPS. 2 to 4 credits. Maximum 12 credits
With permission of the instructor. Selected topics in one or more fields of vegetable crops to include: ecology, nutrition, varietial development and selection, herbicides and other cultural treatments, physiology, distribution, post-harvest handling and marketing.

(For additional courses related to Vegetable Crops—see Plant Science.)

COURSE FOR ADVANCED UNDERGRADUATES AND GRADUATES

VC 506—HANDLING TECHNIQUES AND PRACTICES IN MARKETING. 4 credits*
Prerequisites: PLS 201 or permission of instructor. Desirable prerequisite: BTY 310. Methods and techniques in the harvesting, grading, packaging, transporting and marketing of vegetables. Emphasis on the biological principles involved and the effects of harvesting handling practices on quality maintenance control.

*Available for graduate major credit.

GRADUATE COURSES

VC 603—VEGETABLE CROPS SEMINAR. 1 to 2 credits. Maximum 2 credits
VC 607—TOPICS IN VEGETABLE PRODUCTION PRINCIPLES. 3 to 4 credits Maximum 10 credits
VC 615—ADVANCED OLERICULTURE. 5 credits
VC 621—TECHNIQUES AND METHODS OF VEGETABLE BREEDING. 3 credits
VC 660—PRACTICUM IN VEGETABLE CROPS 4 to 8 credits Maximum 12 credits

VC 670—NON-THESIS RESEARCH IN VEGETABLE CROPS. 2 to 5 credits
Maximum 10 credits
VC 697—SUPERVISED RESEARCH. 1 to 5 credits
VC 698—SUPERVISED TEACHING. 1 to 5 credits
VC 699—MASTER'S RESEARCH. 1 to 15 credits
VC 799—DOCTORAL RESEARCH. 1 to 15 credits

Veterinary Science

INSTRUCTIONAL STAFF 1969-70

Edds, G. T., *Chairman;* Bradley, R. E.; Cardeilhac, P. T.; Colwell, W. M.; Forrester, D. J.; Himes, J. A.; Holden, C. A.; Neal, F. C.; Neilson, J. T. M.; Meyerholz, G. W.; Simpson, C. F.; Taylor, W. M.; White, F. H.

VY 303—PRINCIPLES OF NEMATOLOGY. 4 credits
Identical with EY 303. Prerequisite: ZY 201. (For description see EY 303.)

VY 321—ANATOMY AND PHYSIOLOGY OF DOMESTIC ANIMALS. 5 credits
Prerequisites: ZY 201 and ADP 311. Structure and function of the skeletal, muscular, endocrine, reproductive, circulatory, respiratory, digestive, urinary and nervous systems. Laboratory to include appropriate demonstrations on these systems, particularly animal reproduction.

VY 401—POULTRY DISEASES. 3 credits
Prerequisites: VY 321, BCY 302. Causes, symptoms, methods of prevention and treatment of diseases of poultry.

VY 405—PRINCIPLES OF LABORATORY ANIMAL DISEASES AND MANAGEMENT TECHNIQUES 5 credits
Prerequisites: VY 321, BCY 302, AL 332, 431. Review of diseases with emphasis on their prevention and control.

VY 420—MEDICAL ENTOMOLOGY. 4 credits
Identical with EY 420. Prerequisite: EY 301. (For description see EY 420.)

VY 435—ARTIFICIAL INSEMINATION, PREGNANCY DIAGNOSIS, AND CONTROL OF REPRODUCTIVE DISEASES. 4 credits
Identical with ADP 435. Prerequisite: VY 321. (For description see ADP 435.)

VY 441—ANIMAL DISEASES AND THEIR PREVENTION. 3 credits
Prerequisites: VY 321, BCY 302. The principal diseases of livestock and practical methods for their prevention and control.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

VY 506—LABORATORY ANIMAL MEDICINE. 5 credits*
Prerequisite: Professional medical degree (D.V.M., D.D.S., or M.D.) or approval of instructor. Etiology, pathogenesis, pathology, diagnosis, therapy, prevention and control of various diseases of laboratory animals. Management practices with respect to environmental control, housing, nutrition, reproduction, and the use of axenic and specific pathogen-free animals in medical research.

VY 516—ANIMAL PARASITOLOGY. 5 credits*
Identical with ZY 516. Prerequisite: CY 213 or equivalent. (For description see ZY 516.)

VY 522—VETERINARY PHYSIOLOGY 1. 5 credits*

Prerequisites: Suitable background in biological sciences and BCH 402, 403. Introduction to physiology, mechanisms of digestion, absorption and excretion, metabolism and energy exchange, circulatory system, introduction to endocrinology, endocrine secretions, reproductive systems.

VY 523—VETERINARY PHYSIOLOGY 2. 5 credits*

Prerequisites: VY 522. Respiration, renal function and acid-base balance, dynamics of nerve and muscle, metabolic functions of minerals and vitamins, neurophysiology.

VY 562—VETERINARY PARASITOLOGY 1 5 credits*

Prerequisites: ZY 201, 308, 309 and BCY 300. Selected parasitic diseases of animals including etiology, transmission, pathogenesis, host reaction, and related research techniques.

VY 563—VETERINARY PARASITOLOGY 2 5 credits*

Prerequisite: VY 562. Continuation study of selected parasitic diseases of animals including diagnostic methods, therapy, prevention and control, and related research techniques.

*Available for graduate major credit.

GRADUATE COURSES

VY 602—VETERINARY PATHOLOGY 1. 5 credits
VY 603—VETERINARY PATHOLOGY 2. 5 credits
VY 622—VETERINARY HEMATOLOGY 1. 5 credits
VY 623—VETERINARY HEMATOLOGY 2. 5 credits
VY 624—HELMINTHOLOGY. 5 credits
VY 625—PROTOZOOLOGY. 5 credits
VY 632—VETERINARY PHARMACOLOGY 1. 5 credits
VY 633—VETERINARY PHARMACOLOGY 2. 5 credits
VY 634—VETERINARY TOXICOLOGY 1. 5 credits
VY 635—VETERINARY TOXICOLOGY 2. 5 credits
VY 642—VETERINARY MICROBIOLOGY 1. 6 credits
VY 643—VETERINARY MICROBIOLOGY 2. 6 credits
VY 663—PARASITIC DISEASES IN THE TROPICS AND SUBTROPICS. 5 credits
VY 682—VETERINARY RESEARCH TECHNIQUES 1. 5 credits
VY 683—PROBLEMS IN VETERINARY SCIENCE 2. 1 to 5 credits Maximum 5 credits
VY 690—SEMINAR IN VETERINARY SCIENCE. 1 credit. Maximum 6 credits
VY 697—SUPERVISED RESEARCH 1 to 5 credits
VY 698—SUPERVISED TEACHING 1 to 5 credits
VY 699—MASTER'S RESEARCH. 1 to 15 credits

Forestry

SCHOOL OF FORESTRY

INSTRUCTIONAL STAFF 1969-70

Gray, J. L., *Director;* Beckwith, S. L.; Cornwell, G. W.; Frazer, P. W.; Goddard, R. E.; Harper, V. L.; Huffman, J. B.; Kaufman, C. M.; Miller, J. W., Jr.; Post, D. M.; Schmidt, R. A.; Smith, W. H.; Stanley, R. G.; Strickland, R. K.; Sullivan, E. T.; Swinford, K. R.

FY 218—WOOD ANATOMY AND IDENTIFICATION. 3 credits

An introduction to the anatomy of wood; identification and properties of important commercial wood species in relation to their utilization.

FY 220—INTRODUCTION TO FORESTRY. 3 credits
Fundamental underlying principles of forestry; career survey.

FY 222—FOREST DRAWING. 1 credit
Lettering, freehand and mechanical; use of drawing instruments; preparation of maps and charts as used in forestry practices.

FY 301—LECTURES IN BASIC PLANT PATHOLOGY. 2 credits
Identical with PT 301. Prerequisite: BTY 181 or BTY 203. Principles of plant disease. Reasons for many victories and a few defeats in the continuing war on diseases in plants.

FY 306—FOREST FIRE CONTROL. 3 credits
Techniques of protecting forests from fire; forest fuels and factors affecting their inflammability.

FY 313—LABORATORY IN FOREST PATHOLOGY. 3 credits
Identical with PT 313. Prerequisite or corequisite: FY 301 (PT 301). Diagnoses, etiology, epidemiology and control of important diseases of forest trees.

FY 318—FOREST PRODUCTS UTILIZATION. 3 credits
Prerequisite: FY 218. Descriptions of the wide array of products derived from forests; origin and nature of raw materials; technologies and manufacturing processes.

FY 320—LOGGING AND MILLING. 4 credits
Prerequisite: FY 218. Utilization of major forest products; logging engineering; transportation; equipment; costs; lumber manufacture; plant; milling practice; merchandising of products.

FY 321—INTRODUCTION TO FOREST SURVEYING. 5 credits
Prerequisite: MS 102. Classroom and field training in forest surveying as related to boundaries, drainage and forest roads; surveying principles required for mensuration and forest management.

FY 326—DENDROLOGY 4 credits
Prerequisite: BTY 182 or BTY 203 or CBS 263 and CBS 264. Classification and distinguishing characteristics of the tree species in the United States. Laboratory and field identification.

FY 327—FOREST RESOURCES MEASUREMENT 1. 3 credits
Prerequisite: STA 320. Principles of measuring forest resources including present and potential resources in wood, water, forage, wildlife, and recreational opportunities. Elementary statistical methods are stressed.

FY 328—FOREST RESOURCES MEASUREMENT 1. LABORATORY. 3 credits
Must be taken by forest management students concurrently with FY 327. Practice of measuring the forest resources described under FY 327.

FY 329—FOREST RESOURCES MEASUREMENT 2. 4 credits
Second part of the FY 327, FY 328 and FY 329 sequence. The development of sampling and experimental designs, regression analysis, volume table construction, growth and yield projections, continuous forest inventory and computer methods.

FY 346—FOREST PHOTOGRAMMETRY. 4 credits
Corequisite: FY 327. Prerequisite: MS 102. Principles of aerial photogrammetry applicable to forest land management; practical experience in the use of photo interpretation and mapping equipment.

FY 353—PRINCIPLES OF WILDLIFE ECOLOGY. 4 credits
Prerequisite: ZY 202 or equivalent. Wildlife as a natural resource, its management, conservation and ecology, with particular emphasis on the interrelationships between man, wildlife resources, and their common environments.

FY 354—TECHNIQUES IN WILDLIFE ECOLOGY. 4 credits

Prerequisite: FY 353. Field and laboratory techniques essential to the study and management of wildlife populations.

FY 403—SILVICS-SILVICULTURE. 5 credits

Prerequisites: FY 327-328, BTY 310, SLS 330. Biological aspects of tree growth; environmental influences, forest regeneration; stand management; silvicultural planning.

FY 409—FOREST FINANCE. 4 credits

Prerequisite: FY 420. Forests as investments, interest rates, carrying charges, maturity, relation of intermediate to final and net incomes, and forest insurance.

FY 410—FOREST POLICY 4 credits

Prerequisites: Senior standing. Evolution of public and private policy with respect to forest based resources in the United States. Analysis of current policy in the fields of forestry, outdoor recreation, and wildlife management.

FY 412—SEMINAR. 1 credit

Round-table discussions of the trends, developments, and problems in forestry.

FY 413—FORESTRY FOR AGRICULTURAL MAJORS. 4 credits

Non-credit for forestry majors. Principles and practice of forestry pertinent to the management of agricultural lands.

FY 414—WOOD PRESERVATION. 3 credits

Prerequisite: FY 218. Decay, preservation, treating plants and apparatus, methods and costs, objects treated and results, fire proofing, painting and finishing woods.

FY 416—PRINCIPLES OF FOREST MANAGEMENT. 4 credits

Prerequisite: FY 327 or approval of instructor. Principles of forest management, forest organization, management plans, sub-division of forest areas, forest regulation, cutting cycles, normal forest.

FY 419—APPLIED FOREST MANAGEMENT. 5 credits

Prerequisite: FY 416. Working plans for stand regulation and measures for sustained yield; forest operation and administrative practices, with special emphasis on production analysis and control.

FY 420—FOREST ECONOMICS. 4 credits

Prerequisite: ES 204. The economics of forestry and the forest-product industries. Supply and demand from the viewpoint of the firm. The factors of production in forestry. The application of economic principles to specific problems of forestry and the forest-product industries.

FY 421—KILN AND AIR DRYING OF LUMBER. 4 credits

Prerequisite: FY 309. Wood storage, stacking, air seasoning, kiln drying and schedules, temperature and moisture relations.

FY 423—FOREST MAPPING. 4 credits

Prerequisite: FY 321. Advanced work in forest mapping including: location of contour lines and topographic features, re-establishment of land lines, and lay-out for woods roads.

FY 431—FOREST PROBLEMS SEMINAR. 2 to 6 credits

Investigation of a specific problem in forestry, wildlife ecology or products technology. The student will be assigned to a member of the staff in whose field his interest lies.

FY 434—WILDLIFE RESOURCES OF UPLAND ENVIRONMENTS. 4 credits

Prerequisite: FY 354 or permission of instructor. The study of wildlife resources characteristic of upland areas with emphasis placed on the production of annual crops of wildlife for recreational and commercial purposes.

FY 436—REGULATION OF VERTEBRATE PEST POPULATIONS. 4 credits

Vertebrate pest species and their contribution to economic loss, human disease, loss of life, etc. Emphasis on methods for reducing losses and regulating pest populations. Primarily intended for students in the College of Agriculture and School of Forestry who must cope with pest problems in their area of specialty.

FY 447—LOGGING AND MILLING PRACTICE. 5 credits

Prerequisite: Approval of instructor. Care, use, and maintenance of logging and milling tools and equipment; logging and small sawmill operations.

FY 449—FORESTRY AND WILDLIFE PRACTICUM. 6 credits

Prerequisite: Permission of the Director. Individual off-campus intership with selected forest enterprises or public natural resource management agencies. FY 431 or similar individual problem course may be scheduled concurrently.

FY 450—PRINCIPLES OF FOREST RECREATION. 3 credits

Prerequisite: Senior standing or approval of instructor. Implications of the increasing use of forests and wild lands for outdoor recreation, with special emphasis on the problems of multiple-use management.

FY 451—FOREST MANAGEMENT FOR RECREATION. 3 credits

Prerequisite: FY 450 or approval of instructor. Management of forests, wild lands and waters for outdoor recreational use, with particular attention to the planning and development of recreational facilities for such areas.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

FY 500—INTRODUCTION TO FORESTRY RESEARCH. 3 to 6 credits*
Maximum 6 credits

Prerequisites: Senior standing and consent of instructor. Survey of forestry research areas, methods and disciplines. Literature investigations and original research on forestry problems of current interest.

FY 509—WOOD STRUCTURE AND PROPERTIES. 5 credits

Prerequisites: BTY 203, CY 313, PS 212 or equivalents and consent of instructor. Gross and microscopic structure of wood, methods of identification, elementary wood physics and chemistry in relation to properties and processing.

FY 528—ADVANCED FOREST MENSURATION. 5 credits*

Prerequisite: Consent of instructor. Advanced forest sampling designs; inventory techniques and growth prediction methods, including development and analysis of formulae.

FY 536—WATERFOWL ECOLOGY. 5 credits*

Prerequisite: FY 354 or permission of instructor. The principles and problems concerned with the conservation and management of waterfowl populations.

FY 550—METHODS IN NATURAL RESOURCE INTERPRETATION. 4 credits*

Prerequisites: Permission of instructor. Principles and methods for interpreting, for public use, biological, geographical and historical facts concerning managed forest and wildland environments and recreational developments thereon.

*Available for graduate major credit.

GRADUATE COURSES

FY 600—RESEARCH PROBLEMS IN FORESTRY 3 to 9 credits*
FY 603—RESEARCH PROBLEMS IN WOOD UTILIZATION. 3 to 9 credits*
FY 605—RESEARCH METHODS IN WILDLIFE ECOLOGY 4 credits*

* Course may be repeated with change of content up to a maximum of 9 credits.

FY 606—RESEARCH PROBLEMS IN WILDLIFE ECOLOGY. 3 to 9 credits
FY 611—GRADUATE SEMINAR. 1 credit. Maximum 3 credits
FY 612—TOPICS IN FORESTRY. 1 to 5 credits. Maximum 9 credits
FY 615—FOREST AND RANGE WILDLIFE ECOLOGY 1. 4 credits
FY 616—FOREST AND RANGE WILDLIFE ECOLOGY 2. 4 credits
FY 618—TROPICAL FORESTRY. 4 credits
FY 619—TROPICAL FOREST SCIENCE 12 credits
FY 620—ADVANCED PHYSIOLOGY OF FOREST TREES. 3 credits
FY 621—BIOCHEMISTRY OF TREES. 3 credits
FY 626—FOREST GENETICS 1. 4 credits
FY 627—FOREST GENETICS 2. 4 credits
FY 631—ADVANCED WOOD PRESERVATION. 4 credits
FY 652—TIMBER PHYSICS. 4 credits
FY 653—WOOD CHEMISTRY. 3 credits
FY 680—ADVANCED FOREST ECONOMICS. 3 credits
FY 697—SUPERVISED RESEARCH. 4 credits
FY 698—SUPERVISED TEACHING. 1 to 5 credits
FY 699—MASTER'S RESEARCH. 1 to 5 credits
1 to 15 credits

College of Architecture and Fine Arts

ARCHITECTURE

ART

BUILDING CONSTRUCTION

INTERIOR DESIGN

LANDSCAPE ARCHITECTURE

MUSIC

Architecture

INSTRUCTIONAL STAFF 1969-70

Butt, A. F., *Chairman;* Arneett, W. T.; Branch, D. P.; Brunskill, R. W.; *Visiting Assistant Professor, 1969-70;* Busk, G. S.; Dallerba, M. G., *Visiting Associate Professor, 1969-70;* Dasta, A. J.; Davis, R. S.; Dougald, D. E.; Fearney, E. M.; Graham, R. W.; Grand, J. L. R.; Hamacher, H B.; Herwig, J. A.; Kemp, H. W.; Kinzey, B. Y.; Koru, S. S.; Larrick, T.; McRae, J. M.; Menocal, N. G.; Merritt, H. C.; Miller J. T.; Morandi, R., *Visiting Research Professor 1969-70;* Morse, R. H.; Peterson, L. L.; Raymond, W.; Reeves, F. B.; Ricci, L., *Graduate Research Professor 1969-70;* Sabatella, J. J.; Sajovic, J. W.; Scheffer, G.; Shaw, L. G.; Solis, M. M.; Tillman, W. J.; Voichysonk, B. F.; Wagner, W. G.; Wetterqvist, O. J.; White, T. R.; Young, C. K. M.

AE 112—BASIC DRAWING 4 credits

Exercises to develop the student's skills in percepton and freehand drawing.

AE 113—ARCHITECTURAL DRAWING 1 4 credits

Exercises in instrumental drawing, architectural shades and shadows, and perspective.

AE 121—THE BUILDING ARTS 1 credit

A survey of the building arts, with emphasis on the socal, physical and psychological factors that influence them.

AE 215—ARCHITECTURAL COMMUNICATIONS 4 credits

Multi-media communicaiton techniques, language, graphics, models. Development of explanatory vocabulary, both verbal and visual. Exercises in the graphic simulation of spaces.

AE 235—ARCHITECTURAL DESIGN 1. 4 credits

Prerequisite: AE 113. Basic studies in perception of the components of architecture.

AE 236—ARCHITECTURAL DESIGN 2 4 credits

Prerequsite: AE 235. Basic studies in perception of the components of architecture. Continuation of AE 235.

AE 315—ARCHITECTURAL DRAWING 2 4 credits

Prerequisite: AE 113. Advanced mechanical drawing for architects, landscape architects, and interior designers.

AE 316—ARCHITECTURAL DELINEATION 4 credits

Prerequisite: AE 113. Application of various media to develop rapid and efficient skills in presenting architectural problems. Elective.

AE 321—SPECIAL STUDIES IN ARCHITECTURE 1 4 credits

Prerequisites: Completion of Lower Division program in Architecture, or equivalent and recommendation of advisor. Special studies in Architecture adjusted to individual needs of transfer and special students.

AE 322—SPECIAL STUDIES IN ARCHITECTURE 2 4 credits

Special studies in Architecture adjusted to individual needs of transfer and special students.

AE 323—SPECIAL STUDIES IN ARCHITECTURE 3 3 credits

Special studies in Architecture adjusted to individual needs of transfer and special students.

AE 335—ARCHITECTURAL DESIGN 3 4 credits

Prerequisite: AE 236. Problem solving of architectural design emphasizing creative analysis of various components, both as isolated elements and as they relate to the entire scope of design.

AE 345—MATERIALS AND METHODS OF CONSTRUCTION 1 4 credits
Prerequisite: AE 113. Basic construction terminology; evaluation and selection of building materials in accordance with their functions.

AE 346—MATERIALS AND METHODS OF CONSTRUCTION 2 4 credits
Prerequisite: AE 345. Building codes and construction decisions; relating of building materials to each other in construction sub-assemblies

AE 355—ARCHITECTURAL STRUCTURES 1 4 credits
Prerequisites: MS 202; PS 211, 221. Loads and force systems on structures. Elastic stresses and strains of structural members.

AE 356—ARCHITECTURAL STRUCTURES 2 4 credits
Prerequisite: AE 355. Plastic structural behavior. Analysis of axial members, continuous frameworks, and other structural forms. Deflection of structural members.

AE 365—ENVIRONMENTAL TECHNOLOGY 1 4 credits
Prerequisite: PS 213, 223. Principles and practices of sanitaton, illumination, power, communication and transportation in buildings.

AE 366—ENVIRONMENTAL TECHNOLOGY 2 4 credits
Prerequisite: PS 213, 223. Factors relating to the thermal, atmospheric, and sonic environment.

AE 375—SURVEY OF ARCHITECTURAL HISTORY 1 4 credits
A general survey of social, political, and cultural factors which have generated art and architecture of the following civilizations: Egyptian, Mesopotamian, Greek, Roman, Early Christian, Romanesque, and Gothic.

AE 385—SITE ANALYSIS 4 credits
Prerequisites: MS 202, AE 113. Survey and development of building sites.

AE 435—ARCHITECTURAL DESIGN 4 4 credits
Prerequisite: AE 335. Problem solving in architectural design emphasizing analysis of various components, both as isolated elements and as they relate to the entire scope of creative design.

AE 436—ARCHITECTURAL DESIGN 5 4 credits
Prerequisite: AE 435. Problem solving in architecture emphasizing synthesis of design elements into complete systems of environment.

AE 422—WORKING DRAWINGS. 4 credits
Prerequisite: AE 346. Preparation of Architectural Working Drawings in accordance with the best current practices of the architectural profession.

AE 445—MATERIALS AND METHODS OF CONSTRUCTION 3 4 credits
Prerequisites: AE 345, 365, 366, and 356. Continuation of AE 346 with emphasis on the large scale decisions in building construction and relationships to structural and equipment systems, and other aspects of total building design.

AE 456—ARCHITECTURAL STRUCTURES 3 4 credits
Prerequisite: AE 356. Principles of applied structural design; elementary applications.

AE 465—SPECIFICATIONS AND ESTIMATING 4 credits
Prerequisite: AE 442, 445. Development of legal descriptions of building construction. Economic feasibility and cost control in building design.

AE 475—SURVEY OR ARCHITECTURAL HISTORY 2 4 credits
Prerequisite: AE 375. Continuation of a general survey of social, political, and cultural factors which have generated art and architecture of the Renaissance and Baroque periods.

AE 476—SURVEY OF ARCHITECTURAL HISTORY 3 — 4 credits

Prerequisite: AE 475. Continuation of the general survey of soccial, political, and cultural factors which have generated art and architecture of the 19th and 20th centuries.

AE 483—URBAN PLANNING AND DESIGN — 3 credits

Prerequisite: AE 435. An approach to the design of communities, towns, and cities through an examination of the achievements and failures of the past, the opportunities and difficulties of the present, and the possibilities and prospects of the future.

AE 511—ADVANCED COMMUNICATIONS TECHNIQUES. — 3 to 5 credits*

Prerequisite: AE 316. Application of various media showing professional techniques of architectural delineation. May be repeated with change of content up to a maximum of 10 hours.

AE 521—PROFESSIONAL ADMINISTRATION — 4 credits*

Corequisite: AE 435 or Graduate Status. The profession of architecture and the ethical, legal, and administrative responsibilities of the architect. Relationships between architect, owner, and contractor involved in comprehensive architectural services and emerging techniques of practice.

AE 552—ARCHITECTURAL STRUCTURES—ADVANCED STUDIES — 5 credits*

Prerequisite: AE 456. Studies of advanced techniques in building structures.

AE 561—ARCHITECTURAL ACOUSTICS — 4 credits*

Prerequisite: PS 213, 223, and fourth year standing. A comprehensive study of the nature of acoustical problems of buildings: how they are analyzed and solved.

AE 571—PROBLEMS IN ARCHITECTURAL HISTORY — 4 credits*

Prerequisite: AE 476. Individual topics of criticism of reconstruction of selected historical buildings. This course may be repeated for credit.

AE 572—STUDIES IN ARCHITECTURAL THEORY — 4 credits*

Prerequisite: AE 475. Investigation of the literature of architecture with emphasis upon the theory of the seventeenth century through the twentieth century. May be repeated with change of content up to maximum of 8 hours.

AE 573—SURVEY OF CHINESE ARCHITECTURE — 4 credits

Prerequisite: AE 476 or consent of instructor for non-architectural majors. A historical development of the special characteristics of Chinese architectural design and construction with its current implications.

AE 581—SURVEY OF ARCHITECTURAL PRESERVATION, RESTORATION AND RECONSTRUCTION — 4 credits*

Prerequisite: Upper division or graduate status. A survey of private and public preservation, restoration and reconstruction in the United States with consideration of problems and techniques and the roles of the specialist.

AE 582—TECHNIQUES OF ARCHITECTURAL DOCUMENTATION — 4 credits*

Prerequisite: Upper division or graduate status. Instruction in the preparation of inventories, surveys, photographs, drawings and other archival data. Approved field experiences will be allowed as a substitute for AE 582.

AE 583—HISTORIC PRESERVATION AND RESTORATION: INTERIORS — 4 credits*

Prerequisite: Upper division or graduate status. A survey of American interiors with emphasis on furniture, fabrics, metals and uses of spaces.

AE 584—HISTORIC PRESERVATION AND RESTORATION: LANDSCAPE ARCHITECTURE — 4 credits*

Prerequisite: Upper division or graduate status. A survey of historic landscape architecture in the United States and of traditional materials and methods.

*Available for graduate major credit on approval of course counselor.

GRADUATE COURSES

AE 601—GRADUATE SEMINAR	3 to 5 credits Maximum 9 credits
AE 621—ARCHITECTURAL RESEARCH	3 to 9 credits Maximum 9 credits
AE 631—ARCHITECTURAL DESIGN 1	5 credits
AE 632—ARCHITECTURAL DESIGN 2	8 credits
AE 633—ARCHITECTURAL DESIGN 3	8 credits
AE 634—ARCHITECTURAL DESIGN 4	8 credits
AE 635—ARCHITECTURAL DESIGN 5	4 credits
AE 650—STRUCTURAL DESIGN LABORATORY 1	4 credits
AE 651—APPLIED STRUCTURAL DESIGN 1	4 credits
AE 652—STRUCTURAL DESIGN LABORATORY 2	4 credits
AE 653—APPLIED STRUCTURAL DESIGN 2	4 credits
AE 654—STRUCTURAL DESIGN LABORATORY 3	4 credits
AE 655—APPLIED STRUCTURAL DESIGN 3	4 credits
AE 656—STRUCTURAL DESIGN LABORATORY 4	4 credits
AE 657—APPLIED STRUCTURAL DESIGN 4	4 credits
AE 658—STRUCTURAL DESIGN LABORATORY 5	4 credits
AE 659—STRUCTURAL DESIGN LABORATORY 6	4 credits
AE 660—ENVIRONMENTAL SYSTEMS DESIGN LABORATORY 1	4 credits
AE 661—ENVIRONMENTAL SYSTEMS DESIGN 1	4 credits
AE 662—ENVIRONMENTAL SYSTEMS DESIGN LABORATORY 2	4 credits
AE 663—ENVIRONMENTAL SYSTEMS DESIGN 2	4 credits
AE 664—ENVIRONMENTAL SYSTEMS DESIGN LABORATORY 3	4 credits
AE 665—ENVIRONMENTAL SYSTEMS DESIGN 3	4 credits
AE 666—ENVIRONMENTAL SYSTEMS DESIGN LABORATORY 4	4 credits
AE 667—ENVIRONMENTAL SYSTEMS DESIGN 4	4 credits
AE 668—ENVIRONMENTAL SYSTEMS DESIGN LABORATORY 5	4 credits
AE 669—ENVIRONMENTAL SYSTEMS DESIGN LABORATORY 6	4 credits
AE 671—ARCHITECTURAL HISTORY 1	5 credits
AE 672—ARCHITECTURAL HISTORY 2	5 credits
AE 673—ARCHITECTURAL HISTORY 3	5 credits
AE 674—ARCHITECTURAL HISTORY—AREA CONCENTRATION	5 credits Maximum 15 credits
AE 677—ARCHITECTURAL HISTORY—LITERATURE AND CRITICISM	5 credits Maximum 15 credits
AE 681—ARCHITECTURAL HISTORY: AMERICAN 1	5 credits
AE 682—ARCHITECTURAL HISTORY: AMERICAN 2	5 credits
AE 683—ARCHITECTURAL HISTORY: REGIONAL	5 credits
AE 684—ARCHITECTURAL HISTORY: FLORIDA	5 credits
AS 685—TECHNOLOGY OF RESTORATION:: MATERIALS AND METHODS 1	4 credits
AE 686—TECHNOLOGY OF RESTORATION: MATERIALS AND METHODS 2	4 credits
AE 687—TECHNOLOGY OF RESTORATION: STRUCTURAL AND MECHANICAL SYSTEMS	4 credits
AE 688—TECHNOLOGY OF RESTORATION: TECHNIQUES OF PRESERVATION, RESTORATION AND RECONSTRUCTION	4 credits
AE 697—SUPERVISED RESEARCH	1 to 5 credits
AE 698—SUPERVISED TEACHING	1 to 5 credits
AE 699—MASTER'S RESEARCH	1 to 15 credits

Art

INSTRUCTIONAL STAFF 1969-70

Grissom, E. E., *Chairman;* Craven, R. C.; Flam, J. D.; Hindes, C. A.; Hodges, S. L.; Holbrook, H. H.; Kampen, M. E.; Kerslake, K. A.; Kesl, L. E.; Kraver, R. T.;

McLean, C. L.; Naylor, J. G.; Nichelson, J. C.; O'Connor, J. A.; Petruchyk, J. A.; Prince, D. D.; Purser, S. R.; Skelley, R. C.; Uelsmann, J. N.; Vierow, J. W.; Ward, J. L.; Ward, P. A.; Williams, H. D.

ART 101—BEGINNING DESIGN, 1. 3 credits

Fundamental principles of visual organization. Emphasis upon two-dimensional design in black and white. Students who intend to major in art should Schedule ART 101 and 103 concurrently.

ART 102—BEGINNING DESIGN, 2. 3 credits

Prerequisite: ART 101. Continuation of Art 101. Emphasis upon design in three dimensions. Projects in construction, modeling and carving in a variety of materials.

ART 103—BEGINNING DRAWING AND PAINTING, 1. 3 credits

Drawing as a means of formal organization. Exploration of the drawing media through still-life, figure and landscape.

ART 104—BEGINNING DRAWING AND PAINTING, 2. 3 credits

Prerequisite: ART 103. Continuation of ART 103. Emphasis upon spatial description —use of the figure.

ART 205—INTERMEDIATE DESIGN. 3 credits

Prerequisite: ART 101. Continuation of ART 101-102. Emphasis upon color theory, and upon the use of color in design.

ART 206—INTERMEDIATE DRAWING AND PAINTING. 3 credits

Prerequisite: ART 104. Continuation of ART 103-104. Pictorial form. Relationship of subject to pictorial form and content. Paintings in various media.

ART 207—INTRODUCTION TO THE PRINCIPLES AND HISTORY OF ART, 1. 3 credits

Principles of art. Relation of styles to cultural context. Ancient and Medieval art and architecture.

ART 208—INTRODUCTION TO THE PRINCIPLES AND HISTORY OF ART, 2. 3 credits

Prerequisite: ART 207. Continuation of ART 207. Art and architecture through the late Medieval period through Rococo.

ART 209—INTRODUCTION TO THE PRINCIPLES AND HISTORY OF ART, 3. 3 credits

Prerequisite: ART 207-208. Continuation of ART 207-208. 19th and 20th century art to the present day. The visual arts in contemporary society.

ART 210—STUDIO FOR NON-MAJORS. 2 credits

No prerequisites. An introductory studio course for the non-profession student who does not intend to major in art. Emphasis upon creative expression rather than technical proficiency. Not available for credit toward a major in art. This course may be repeated with change in content up to a maximum of 4 credits.

ART 260—LETTERING. 3 credits

Prerequisite: ART 101. Principles of design and use of letter forms. Study of historic designs and styles. Development of skills and execution.

ART 280—BEGINNING CERAMICS. 3 credits

Prerequisite: ART 101. Basic concepts of ceramic design. Experience in processes of forming, decorating, glazing and firing pottery.

ART 303—METHODS AND MATERIALS OF THE ARTIST. 3 credits

Prerequisite: ART 206. The physical properties of the artist's materials and the history of their use. Traditional experimental materials and techniques.

ART 309—CRITICISM OF ART. 3 credits
Prerequisite: ART 207-208-209. Review of principal theories in the history of criticism. Analysis and evaluation of work of art. Problems in the criticism of contemporary art.

ART 314—PRIMITIVE ART. 3 credits
Prerequisite: ART 207-208-209. The visual arts in Primitive Civilizations with an emphasis on the primitive Negro in Africa. This course may be repeated with change of content.

ART 316—GREEK ART. 3 credits
Prerequisite: ART 207-208-209. The art and architecture of ancient Crete and Greece.

ART 317—ROMAN AND EARLY CHRISTIAN ART. 3 credits
Prerequisite: ART 207-208-209. The art and architecture of the Italian peninsula. Etruscan through the Roman Empire—early Christian and Byzantine art.

ART 318—MEDIEVAL ART. 3 credits
Prerequisite: ART 207-208-209. The art and architecture of Europe and the Mediterranean region from approximately the fourth to the fourteenth centuries A.D.

ART 323—ORIENTAL ART. 3 credits
Prerequisite: ART 207-208-209. The visual arts in Oriental civilizations. This course may be repeated with change of content.

ART 324—AMERICAN ART. 3 credits
Prerequisite: ART 207-208-209. Painting and sculpture in the United States from the middle of the 18th century through 1913.

ART 341—PHOTOGRAPHY, 1. 3 credits
Prerequisite: ART 101. Fundamentals of photography. Operation of camera. Developing, printing, enlarging. Principles of design in photography.

ART 342—PHOTOGRAPHY, 2. 3 credits
Prerequisite: ART 341. Continuation of ART 341.

ART 350—INTERMEDIATE DRAWING, 1. 3 credits
Prerequisite: ART 104. The function of drawing in art. Pictorial concepts motivated by study of the human figure. Problems of draftsmanship and form.

ART 351—INTERMEDIATE DRAWING, 2. 3 credits
Prerequisite: ART 350. Continuation of ART 350.

ART 353—PAINTING, 1. 3 credits
Prerequisite: ART 206. The oil medium. Technical and creative problems. Continued emphasis upon pictorial organization.

ART 354—PAINTING, 2. 3 credits
Prerequisite: ART 353. Work in one or more of the painting media: oil, watercolor, casein, lacquer, tempra, etc.

ART 355—PRINTMAKING, 1. 3 credits
Prerequisite: ART 206. Basic procedure and processes in printmaking. Formal and expressive characteristics of the print media.

ART 356—PRINTMAKING, 2. 3 credits
Prerequisite: ART 355. A continuation of ART 355.

ART 357—SCULPTURE, 1. 3 credits
Prerequisite: ART 102. Problems in sculptural form and composition. Work in plaster, clay, metal and other materials.

ART 358—SCULPTURE, 2. 3 credits
Prerequisite: ART 357. Continuation of ART 357. Emphasis upon sculpture in metal. Introduction to carving.

ART 360—LAYOUT, 1. 3 credits
Prerequisite: ART 101, 205. Recommended, ART 260. Fundamental principles of visual communication and of design in printed material.

ART 361—LAYOUT, 2. 3 credits
Prerequisite: ART 360. Continuation of ART 360.

ART 362—TYPOGRAPHICAL DESIGN. 3 credits
Prerequisite: ART 360-361. Study of the nomenclature, basic principles and mechanics of typography as an element of graphic communication. Practical exercises in layout and preparation of type for the printed page.

ART 368—ADVERTISING DESIGN. 6 credits
Prerequisite: ART 360-361-362. Principles of advertising design with emphasis upon development of visual ideas and necessary skills and techniques for their presentation.

ART 380—INTERMEDIATE CERAMICS, 1. 3 credits
Prerequisite: ART 280. Continuation of ART 280. Emphasis upon the use of the potter's wheel and experimentation with ceramic glazes.

ART 381—INTERMEDIATE CERAMICS, 2. 3 credits
Prerequisite: ART 380. Continuation of ART 380.

ART 383—JEWELRY AND METALWORK, 1. 3 credits
Prerequisite: ART 102. Basic processes in jewelry and metalwork. Work in silver, copper, and other materials. Enameling on metal.

ART 384—JEWELRY AND METALWORK, 2. 3 credits
Prerequisite: ART 383. Emphasis upon craftsmanship. Advanced techniques in metalwork and enameling.

ART 385—JEWELRY AND METALWORK, 3. 3 credits
Prerequisite: ART 383-384. Continuation of ART 384.

ART 408—SENIOR SEMINAR. 3 credits
Prerequisite: Senior standing and a major in art. Study and discussion of selected topics of current interest and significance in the visual arts.

ART 420—EARLY RENAISSANCE ART IN ITALY. 3 credits
Prerequisite: ART 207-208-209. Italian art and architecture of the 14th century. Emphasis upon painting and sculpture.

ART 421—RENAISSANCE ART IN ITALY. 3 credits
Prerequisite: ART 207-208-209. Continuation of ART 420. Italian art and architecture of the 15th century. Emphasis upon painting and sculpture.

ART 422—LATER RENAISSANCE ART IN ITALY. 3 credits
Prerequisite: ART 207-208-209. Continuation of ART 421. Italian art and architecture of the 16th century. Emphasis upon painting and sculpture.

ART 423—RENAISSANCE ART IN NORTHERN EUROPE. 3 credits
Prerequisite: ART 207-208-209. Sources and development of late 14th and 15th century European art outside Italy. Emphasis upon painting and sculpture.

ART 424—LATER RENAISSANCE ART IN NORTHERN EUROPE. 3 credits
Prerequisite: ART 207-208-209. Continuation of ART 423. 16th century European art outside Italy. Emphasis upon painting and sculpture.

ART 425—BAROQUE ART IN EUROPE. 3 credits
Prerequisite: ART 207-208-209. Continuation of ART 422-423. European art and architecture in the 17th and 18th centuries. Emphasis upon painting and sculpture.

ART 427—NINETEENTH CENTURY ART. 3 credits
Prerequisite: ART 207-208-209. Continuation of ART 425. European art and architecture in the nineteenth century. Emphasis upon painting and sculpture. Neo-Classicism, Romanticism, Realism.

ART 428—LATE NINETEENTH CENTURY ART. 3 credits
Prerequisite: ART 207-208-209. Continuation of ART 427. European art and architecture from approximately 1875 to 1913.

ART 429—TWENTIETH CENTURY ART. 3 credits
Prerequisite: ART 207-208-209. Continuation of ART 428. European and American art from 1913 to present day.

ART 441—ADVANCED PHOTOGRAPHY. 3 or 6 credits
Prerequisite: ART 342. Use of the camera as a medium of individual creative expression. Experimental projects in black and white and color photography. This course may be repeated for credit.

ART 450—ADVANCED DRAWING. 3 credits
Prerequisite: ART 350-351. Emphasis upon the drawing as a terminal creative expression rather than as a preliminary study. This course may be repeated for credit.

ART 453—ADVANCED PAINTING. 3 or 6 credits
Prerequisite: ART 354. Emphasis upon individual creative expression. This course may be repeated for credit.

ART 455—ADVANCED PRINTMAKING. 3 or 6 credits
Prerequisite: ART 356. Advanced problems in creative printmaking. This course may be repeated for credit.

ART 457—ADVANCED SCULPTURE. 3 or 6 credits
Prerequisite: ART 358. Advanced problems in sculptural form with further development of processes and techniques. This course may be repeated for credit.

ART 460—ADVANCED ADVERTISING DESIGN. 6 credits
Prerequisite: ART 368. Continuation of ART 368. Planning of advertising campaigns. Emphasis upon concise visual thinking and upon speed and quality of execution.

ART 467—PROJECTS IN ADVERTISING DESIGN, 1. 3 credits
Prerequisite: ART 368. Corequisite: ART 460. Projects in design and execution of page advertisement and direct-mail brochures. Poster design and package design.

ART 468—PROJECTS IN ADVERTISING DESIGN, 2. 6 credits
Prerequisite: ART 467. Design and execution of comprehensive advertising campaign.

ART 480—ADVANCED CERAMICS. 3 or 6 credits
Prerequisite: ART 382. Contemporary ceramic design and execution. Advanced technical and creative problems. This course may be repeated for credit.

ART 490—HONORS SEMINAR IN ART. 3 credits
Prerequisite: ART 408 or equivalent, senior standing and a major in art. Intensive study by the seminar method of a limited topic in the field of art.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ART 500—METHODS OF RESEARCH AND BIBLIOGRAPHY. 3 credits*
Prerequisite: ART 309 or its equivalent.

ART 551—INDIVIDUAL WORK. 3 or 6 credits*
Prerequisite: A major in art and permission of the departmental head. This course may be repeated for credit.

*Available for graduate major credit.

GRADUATE COURSES

ART 611—SEMINAR: PROBLEMS IN RENAISSANCE AND BAROQUE ART. 3 credits
ART 621—SEMINAR: PROBLEMS IN 19TH AND 20TH CENTURY ART. 3 credits
ART 622—SEMINAR: PROBLEMS IN CONTEMPORAY ART. 3 credits
ART 650—ADVANCED DRAWING. 3 credits
ART 651—ADVANCED PROJECTS STUDIO. 3, 6, or 9 credits
ART 655—RESEARCH IN THE METHODS AND MATERIALS OF THE ARTIST. 3 or 6 credits
ART 697—SUPERVISED RESEARCH. 1 to 5 credits
ART 698—SUPERVISED TEACHING. 1 to 5 credits
ART 699—MASTER'S RESEARCH. 1 to 15 credits

Building Construction

INSTRUCTIONAL STAFF 1969-70

Johnson, L. A., *Chairman;* Bristor, J.D.; Caldwell, W. T.; Carter, J. M.; Eppes, B. G.; Grim, C. Jr.; Halperin, D. A.; Holland, H. F.; Manning, J. H.; Martin, T. E.; Prugh, B. J.; Stakely, J. O.; Trimmer, J. M.; Williamson, H. D.; Zeigler, C. D.

BCN 123—CONSTRUCTION MATERIALS. 4 credits
Sources, properties and uses of construction materials.

BCN 261—CONSTRUCTION MECHANICS 1. 4 credits
Prerequisites: MS 201 and PS 211. Corequisite: MS 202. The study of external forces, truss analysis and geometric properties of members as applied to the design of structures.

BCN 311—CONSTRUCTION MECHANICS 2. 4 credits
Prerequisites: MS 201 and BCN 261. The study of stresses and strains and external forces on indeterminate members as applied to the design of structures.

BCN 312—CONSTRUCTION SURVEYING AND DRAWING. 5 credits
Prerequisite: Junior standing. Corequisite: BCN 313. Principles and practices of surveying and drawing applied to construction.

BCN 313—CONSTRUCTION TECHNIQUES 1. 5 credits
Prerequisite: AE 113 or equivalent. Corequisites: BCN 123 and BCN 312. Study and analysis of job planning required, work methods, materials, and equipment employed on light construction projects which include residential and small commercial buildings.

BCN 314—ENVIRONMENTAL TECHNOLOGY 1. 4 credits
Prerequisite: PS 213. Principles and practices of building piping systems and consideration of code requirements and cost estimation.

BCN 320—STRUCTURES 1. 4 credits
Prerequisite: BCN 311. Theory and principles of design of steel structural elements and connections and their applications in construction.

BCN 323—CONSTRUCTION TECHNIQUES 2. 5 credits
Prerequisite: BCN 313. Continuation of BCN 313, Construction Techniques 1, as applied to medium commercial and industrial construction projects.

BCN 324—ENVIRONMENTAL TECHNOLOGY 2. 4 credits
Prerequisite: PS 213. Principles and practices of year-around air conditioning, ventilation, and sound control in buildings including code provisions and cost estimation.

BCN 333—CONSTRUCTION TECHNIQUES 3. 5 credits
Prerequisite: BCN 323. Continuation of BCN 323, Construction Techniques 2, as applied to heavy, commercial and industrial construction projects.

BCN 334—ENVIRONMENTAL TECNOLOGY 3. 4 credits
Prerequisite: PS 213. Principles and practices of electrical systems and vertical transportation for buildings including code provisions and cost estimation.

BCN 335—SITE DEVELOPMENT. 4 credits
Prerequisite: BCN 312. Principles and practices of residential, business and industrial land development.

BCN 410—STRUCTURES 2. 4 credits
Prerequisite: BCN 311. Theory and principles of design of wood and timber structural elements and connections and their applications in construction.

BCN 412—CONSTRUCTION MANAGEMENT 1. 4 credits
Prerequisite: MGT 401. Management principles, methods and problems relating to construction.

BCN 413—QUANTITY SURVEYING. 5 credits
Prerequisite: BCN 323. Corequisite: BCN 333. Classification of work and quantity survey techniques applied to construction projects.

BCN 422—CONSTRUCTION MANAGEMENT 2. 4 credits
Prerequisite: BCN 412. Continuation of Construction Management 1.

BCN 423—CONSTRUCTION ESTIMATING. 4 credits
Prerequisite: BCN 413. Analysis and determination of costs of construction operations including applicable indirect and overhead costs and the preparation of bid proposals for construction projects.

BCN 424—HISTORY OF CONSTRUCTION. 4 credits

BCN 430—STRUCTURES 3. 4 credits
Prerequisite: BCN 311. Theory and principles of design of reinforced concrete structural elements and their applications in construction.

BCN 432—CONSTRUCTION MANAGEMENT 3. 4 credits
Prerequisite: BCN 422. Continuation of Construction Management 2.

BCN 442—ADVANCED CONSTRUCTION DRAWING. 4 credits
Prerequisite: BCN 312 or senior standing. Construction, detail and shop drawings for structures, structural components and mechanical services for buildings.

BCN 444—ENVIRONMENTAL TECHNOLOGY 4. 4 credits
Prerequisites: BCN 314, 324, and 334. Advanced studies of mechanical and electrical systems for buildings including comparative systems analysis.

BCN 445—SYSTEMS OF ARCHITECTURAL CONSTRUCTION. 4 credits
Prerequisite: Senior standing. Study of industrialized construction techniques, designs ands costs for American and foreign systems.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

BCN 501—ADVANCED STRUCTURES. 4 credits*
Prerequisites: BCN 320, 333, and 410. Advanced topics in design of structural elements and their application in construction.

BCN 502—CONSTRUCTION PLANNING AND CONTROL. 4 credits*
Corequisite: BCN 423. Time-cost relationships for the various construction operations.

BCN 503—ADVANCED CONSTRUCTION TECHNIQUES. 4 credits*
Prerequisites: BCN 323 and 333. Advanced continuation of BCN 333, Construction Techniques 3.

BCN 504—CONSTRUCTION COST ANALYSIS. 4 credits*
Prerequisites: ATG 202 and BCN 423. Comparative analysis of actual and estimated costs as used for project control.

BCN 505—SPECIAL STUDIES IN CONSTRUCTION. 3 to 9 credits*
May be repeated with change of content up to a maximum of 18 hours. Prerequisite: Senior or graduate standing. Special studies to provide for requirements of students desiring supplemental work in the building construction area.

*Available for graduate major credit.

GRADUATE COURSES

BCN 601—BUILDING CONSTRUCTION. 5 to 10 credits
Maximum 10 credits
BCN 602—BUILDING CONSTRUCTION. 5 to 10 credits
Maximum 10 credits
BCN 603—BUILDING RESEARCH. 5 to 10 credits
Maximum 10 credits
BCN 604—BUILDING RESEARCH. 5 to 10 credits
Maximum 10 credits
BCN 697—SUPERVISED RESEARCH. 1 to 5 credits
BCN 698—SUPERVISED TEACHING. 1 to 5 credits
BCN 699—MASTER'S RESEARCH. 1 to 15 credits

Interior Design

INSTRUCTIONAL STAFF 1969-70

Butt, A. F., *Chairman;* Everett, G. D.; McFarlane, J.; Mansell, R.

IR 331—INTERIOR DESIGN 1 5 credits
Problems involving floor, wall and ceiling treatments; furniture arrangements, material selection; lighting and architectural details for residential spaces.

IR 332—INTERIOR DESIGN 2 5 credits
Prerequisite: IR 331. Continuation of Interior Design 1.

IR 333—INTERIOR DESIGN 3 5 credits
Prerequisite: IR 332. Continuation of Interior Design 2.

IR 341—INTERIOR FURNISHINGS 1 4 credits
Corequisite: IR 331. Lectures and demonstrations of materials and furnishings used in Interior Design.

IR 342—INTERIOR FURNISHINGS 2 4 credits
Prerequisite: IR 341. Continuation of Interior Furnishings 1.

IR 343—INTERIOR FURNISHINGS 3 4 credits
Prerequisite: IR 342. Continuation of Interior Furnishings 2.

IR 372—HISTORY 1 4 credits
Historic interior styles to the end of the 16th century, with emphasis on their cultural settings.

IR 373—HISTORY 2 4 credits
Historic interior styles from the beginning of the 17th century to 1930, with emphasis on their continuing cultural settings.

IR 375—TEXTILES 4 credits
Study of textiles, selection, maintenance, fabrication. Emphasis on natural and synthetic fibers used in drapery, upholstery, and wall covering fabrics and floor coverings.

IR 431—ADVANCED INTERIOR DESIGN 1 8 credits
Prerequisite: IR 333. Design problems involving commercial, institutional and public areas.

IR 432—ADVANCED INTERIOR DESIGN 2 8 credits
Prerequisite: IR 431. Continuation of Advanced Interior Design 1.

IR 433—ADVANCED INTERIOR DESIGN 3 8 credits
Prerequisite: IR 432. Terminal project involving all the principles of design studied in previous courses.

IR 443—PRACTICE OF INTERIOR DECORATING 4 credits
Prerequisite: IR 431. Administration of interior decorating operations; estimating, professional relations, legal forms, specifications and supervision.

IR 502—INTERIOR DESIGN FOR ARCHITECTS 5 credits
Prerequisite: AE 435. Advanced problems in the design of commercial and institutional interiors.

Landscape Architecture

INSTRUCTIONAL STAFF 1969-70

Butt, A F., *Chairman;* Sanderson, J. A.; Smith, H. H.

LAE 271—HISTORY AND THEORY OF LANDSCAPE ARCHITECTURE 1 4 credits
Esthetic and economic theory of landscape design, from antiquity through the informal period.

LAE 272—HISTORY AND THEORY OF LANDSCAPE ARCHITECTURE 2 4 credits
20th century landscape architecture with emphasis on the bionomic relationships of natural and created landscape.

LAE 331—LANDSCAPE ARCHITECTURAL DESIGN 1 5 credits
Prerequisite: AE 235. Program organization, generation of exterior spaces, horizontal circulation; site studies based on individual and group functions.

LAE 332—LANDSCAPE ARCHITECTURAL DESIGN 2 5 credits
Prerequisite: LAE 331. Continuation of LAE 331 with increasing emphasis on horizontal circulation, textural and scale relationships.

LAE 333—LANDSCAPE ARCHITECTURAL DESIGN 3 5 credits
Prerequisite: LAE 332. Continuation of LAE 332 with emphasis on roadway alignment, parkway and roadside development; site studies based on large group functions.

LAE 341—LANDSCAPE CONSTRUCTION 1 4 credits
Corequisite: LAE 331. Characteristics of land form and the effects of grading on drainage, soils and location of landscape architectural elements.

LAE 342—LANDSCAPE CONSTRUCTION 2 4 credits
Prerequisite: LAE 341. Design of non-habitable structures, pavings, trails, low retaining walls and irrigation system layouts.

LAE 353—PLANTING DESIGN 5 credits
Prerequisite: OH 331. Plant materials as major design elements and the execution of planting plans; specifications and cost estimates. Open to upper division students in Ornamental Horticulture by permission of instructor.

LAE 363—GROUNDS MAINTENANCE 4 credits
Prerequisite: OH 332. Survey of landscape maintenance problems with emphasis on institutional and public areas.

LAE 421—SENIOR SEMINAR 3 credits
Prerequisite: Senior Standing Reports, project presentations, visiting lecturers.

LAE 431—ADVANCED LANDSCAPE ARCHITECTURAL DESIGN 1 8 credits
Prerequisite: LAE 333 and LAE 343. Large scale and planning projects with emphasis on team and collaborative processes.

LAE 432—ADVANCED LANDSCAPE ARCHITECTURAL DESIGN 2 8 credits
Prerequisite: LAE 431. Continuation of advanced Landscape Architectural Design 1.

LAE 433—ADVANCED LANDSCAPE ARCHITECTURAL DESIGN 3 8 credits
A terminal comprehensive project based on the principles of previous studies. Additional sketch problems may be given.

LAE 442—PROFESSIONAL ADMINISTRATION 5 credits
Prerequisite: LAE 431. The preparation of cost estimates and specifications based on different project types, programming of landscape construction. Office administration, contracts, professional ethics.

LAE 481—RECREATION PLANNING 4 credits
Prerequisite: LAE 333, LAE 343. Problems in urban, state and regional recreational planning and development.

LAE 521—SITE PLANNING 4 credits
Prerequisite: AE 385. Site planning based on interelations of structure, ground planes, sections, and profiles.

Music

INSTRUCTIONAL STAFF 1969-70

Poole, R., *Chairman;* Bodine, W. R.; Bolles, R. S.; Bowles, R. W.; Brask, W. J. G.; Danburg, R. L.; Forbes, I. C.; Foster, R. E.; Fouse, S. B.; Graham, M. N.; Grigsby, J. R.; Groth, E. C.; Hale, J. P.; Henderson, R. M.; Keister, E. J.; Kitts, J. S.;

Kushner, D. Z.; Small, T. S.; Sterrett, D. E.; Teeters, S. B.; Troupin, E. C.; White, C. B.; Wilmot, D. L.; Zumbro, J. M.

Degree programs in music include: the Bachelor of Music and Bachelor of Arts, in which degrees a student may major in music theory and composition, history and literature, church music, or applied music in piano, voice, organ, harpsichord, or in any orchestral instrument; the Bachelor of Music Education degree; and the Master of Education Degree with a major in music education. A prospective music major should consult the Department of Music adviser at his earliest opportunity, obtain detailed outlines of curricula and requirements, and make application for admission to music major status.

Music Performance Scholarships are available.

Courses offered in the Department of Music are divided into five areas: Theory; History and Literature; Applied Music; Music Education; Ensemble.

Enrollment is open to all qualified University students—those preparing for a professional goal in music and those seeking a musical literacy for its cultural value.

MUSIC THEORY COURSES

MSC 101, 102, 103—THEORY OF MUSIC 1, 2, 3. 3 credits each course

Corequisites: MSC 104, 105, 106, 71, 72, 73. Rhythms, intervals, motifs, phrases, melodies, chords and chord progressions in the standard clefs through listening, playing, singing and writing. Chord study includes primary and secondary triads in root position and inversions, non-harmonic tones and diatonic seventh chords.

MSC 104, 105, 106—THEORY OF MUSIC LAB. 1, 2, 3. 1 credit each course

Corequisites: MSC 101, 102, 103. Sight-singing and dictation.

MSC 201, 202, 203—THEORY OF MUSIC 4, 5, 6. 3 credits each course

Corequisites: MSC 204, 205, 206, 74, 75, 76. Modulation, secondary dominants. diminished sevenths, neapolitan and augmented sixths, chords of the ninth, eleventh and thirteenth.

MSC 204, 205, 206—THEORY OF MUSIC LAB. 4, 5, 6. 1 credit each course

Corequisites: MSC 201, 202, 203. Sight-singing and dictation.

MSC 303—FORM AND ANALYSIS 1. 4 credits

Prerequisite: MSC 203. Analysis of the form and harmony employed in standard musical compositions through the classic period.

MSC 304—FORM AND ANALYSIS 2. 4 credits

Prerequisite: MSC 203. Analysis of music of the nineteenth and twentieth centuries.

MSC 305, 306—INSTRUMENTATION AND ARRANGING 1, 2. 4 credits each course

Prerequisite: MSC 203 or equivalent. Scoring for the instruments of the orchestra and band, singly and in various combinations.

MSC 307, 308—COMPOSITION 1, 2. 4 credits each course

Prerequisite: Permission of instructor. Composition in simple and extended forms, supplemented by analysis of selected compositions from the standard repertoire.

MSC 403—MODAL COUNTERPOINT. 4 credits

Prerequisite: MSC 203. Free and strict counterpoint in the sixteenth century modal style through listening, reading, playing, singing, and writing.

MSC 404—TONAL COUNTERPOINT. 4 credits

Prerequisite: MSC 203. Counterpoint in the 18th-century style through listening, reading, playing, singing, and writing.

MSC 405, 406—CONDUCTING 1, 2. 4 credits each course

Prerequisite: Twelve credits in one area of applied music or permission of the instructor. Basic techniques of choral and instrumental conducting.

HISTORY AND LITERATURE COURSES

MSC 210—INTRODUCTION TO MUSIC. 4 credits
A study of music literature through readings, listening and discussion. Open as an elective to all students.

MSC 311—CLASSIC LITERATURE. 4 credits
Prerequisite: MSC 210 or equivalent. Music of the major composers of the Classic period, with special emphasis on Haydn, Mozart and Beethoven.

MSC 312—BAROQUE LITERATURE. 4 credits
Prerequisite: MSC 210 or equivalent. Compositions of Monteverde, Gabrieli, Schutz, Buxtehude, Bach, Handel, and others.

MSC 314—ROMANTIC VOCAL LITERATURE. 4 credits
Prerequisite: MSC 210 or equivalent. Lieder, opera, music drama, oratorio, and vocal chamber music from Beethoven to Richard Strauss; analysis of form and style.

MSC 315—LATIN-AMERICAN MUSIC. 4 credits
Prerequisite: MSC 210 or equivalent. Representative works of the leading composers of Latin America, including Chavez, Villa-Lobos, Guarnieri, Sas, Williams, Uribe-Holguin, Carvalho, Santa Cruz, Delgadillo, and Paz.

MSC 316—ORGAN DESIGN AND LITERATURE. 4 credits
Primarily for organists. Church architectural design and acoustics; liturgical forms; liturgical year; service music; service playing.

MSC 317—SURVEY OF MUSIC HISTORY 1. 4 credits
Antiquity, Middle Ages, and Renaissance.

MSC 318—SURVEY OF MUSIC HISTORY 2. 4 credits
Baroque and Classic periods.

MSC 319—SURVEY OF MUSIC HISTORY 3. 4 credits
Romantic and contemporary periods.

MSC 411—CONTEMPORARY LITERATURE. 4 credits
Prerequisite: MSC 210 or equivalent. Twentieth-century music literature, including works of Debussy, Ravel, Stravinsky, Schoenberg, Webern, Berg, Hindemith, Bartok, Copland, Sessions, Boulez, and Stockhausen.

MSC 412—HISTORY OF JAZZ. 4 credits
From African, Latin-American, and Black-American sources, through contemporary developments.

MSC 414—RENAISSANCE LITERATURE. 4 credits
Prerequisite: MSC 210 or equivalent. Instrumental music, mass, madrigal, motet, and vocal polyphony from 1400 to 1600.

MSC 415—ROMANTIC INSTRUMENTAL LITERATURE 4 credits
Prerequisite: MSC 210 or equivalent. Beethoven to Richard Strauss. Symphony, tone poem, chamber music, and piano works.

MSC 416—CHURCH MUSIC AND HYMNODY. 4 credits
Prerequisite: MSC 317, 318, 319, or equivalent. Primarily for church music directors. Hymnology; choral literature for specific contexts; church music administration.

APPLIED MUSIC COURSES

GENERAL POLICY:

Applied Music is defined as lessons in voice and musical instruments. Courses are offered in voice, piano, organ, violin, viola, violoncello, string bass, flute, oboe,

clarinet, bassoon, French horn, trumpet, trombone, tuba, percussion, saxophone, harp, and harpsichord. These courses are primarily for music majors. They are open to non-majors by special audition only.

The student registering for the first time for courses in Applied Music reports to the Chairman of the Department of Music, who designates a faculty member to audition and/or consult with the student and assign the student to the proper applied music course number.

Applied music courses beneath the college level of applied music study carry one hour credit and are designated by numbers carrying two digits in the course designation. These courses are MSC 21, 23, 25, 27, 35, 43, and 51. They may normally be taken for three quarters.

The first two years of college-level study in applied music are designated as "intermediate" study, and by course numbers MSC 121 through 157. Each course carries three credits. The student normally takes one of these courses for six quarters.

The third and fourth years of college-level applied music study are designated as "advanced" study and by course numbers MSC 321 through 357. Admission to these courses is by departmental audition. Each course may be taken normally for six quarters and carries three credits each quarter.

A minimum of 6 hours weekly practice is required in applied music courses.

Auditing of courses in Applied Music is not permitted.

MSC 21—PIANO, BASIC STUDY. 1 credit.
MSC 23—ORGAN, BASIC STUDY. 1 credit.
MSC 25—VOICE, BASIC STUDY. 1 credit.
MSC 27—STRINGS, BASIC STUDY. 1 credit.
MSC 35—WOODWINDS, BASIC STUDY. 1 credit.
MSC 43—BRASS, BASIC STUDY. 1 credit.
MSC 51—PERCUSSION, BASIC STUDY. 1 credit.
MSC 121—INTERMEDIATE PIANO. 3 credits.
MSC 123—INTERMEDIATE ORGAN. 3 credits.
MSC 125—INTERMEDIATE VOICE. 3 credits.
MSC 127—INTERMEDIATE VIOLIN. 3 credits.
MSC 129—INTERMEDIATE VIOLA. 3 credits.
MSC 131—INTERMEDIATE CELLO. 3 credits.
MSC 133—INTERMEDIATE STRING BASS. 3 credits.
MSC 135—INTERMEDIATE FLUTE. 3 credits.
MSC 137—INTERMEDIATE CLARINET. 3 credits.
MSC 139—INTERMEDIATE OBOE. 3 credits.
MSC 141—INTERMEDIATE BASSOON. 3 credits.
MSC 143—INTERMEDIATE FRENCH HORN. 3 credits.
MSC 145—INTERMEDIATE TRUMPET. 3 credits.
MSC 147—INTERMEDIATE TROMBONE. 3 credits.
MSC 149—INTERMEDIATE TUBA. 3 credits.
MSC 151—INTERMEDIATE PERCUSSION. 3 credits.
MSC 153—INTERMEDIATE SAXOPHONE. 3 credits.
MSC 155—INTERMEDIATE HARP. 3 credits.
MSC 157—INTERMEDIATE HARPSICHORD. 3 credits.
MSC 321—ADVANCED PIANO. 3 credits.
MSC 323—ADVANCED ORGAN. 3 credits.
MSC 325—ADVANCED VOICE. 3 credits.
MSC 327—ADVANCED VIOLIN. 3 credits.
MSC 329—ADVANCED VIOLA. 3 credits.
MSC 331—ADVANCED CELLO. 3 credits.
MSC 333—ADVANCED STRING BASS. 3 credits.
MSC 335—ADVANCED FLUTE. 3 credits.
MSC 337—ADVANCED CLARINET. 3 credits.
MSC 339—ADVANCED OBOE. 3 credits.
MSC 341—ADVANCED BASSOON. 3 credits.
MSC 343—ADVANCED FRENCH HORN. 3 credits.
MSC 345—ADVANCED TRUMPET. 3 credits.
MSC 347—ADVANCED TROMBONE. 3 credits.
MSC 349—ADVANCED TUBA. 3 credits.
MSC 351—ADVANCED PERCUSSION. 3 credits.

MSC 353—ADVANCED SAXOPHONE. 3 credits.
MSC 355—ADVANCED HARP. 3 credits.
MSC 357—ADVANCED HARPSICHORD. 3 credits.

MUSIC EDUCATION COURSES

MSC 71, 72, 73, 74, 75, 76—PIANO SKILLS 1, 2, 3, 4, 5, 6. 1 credit each course 1 hour of class instruction per week. Open only to music majors; required of all music majors until piano proficiency examination has been passed.

MSC 260—MUSIC SKILLS. 4 credits
Fundamentals of music needed by the classroom teacher for teaching music in the elementary school. Not open to freshmen. Students with sufficient background in music may exempt the course by examination.

MSC 275—PERCUSSION SKILLS. 2 credits
Open only to music majors. Required of all music education majors.

MSC 277—STRING SKILLS. 2 credits
Open only to music majors. Required of all music education majors.

MSC 279—WOODWIND SKILLS. 2 credits
Open only to music majors. Required of all music education majors.

MSC 281—BRASS SKILLS. 2 credits
Open only to music majors. Required of all music education majors.

MSC 283—VOICE SKILLS. 2 credits
Open only to music majors. Required of all music education majors who are not voice majors.

MSC 363, 364—PROJECTS AND PROBLEMS IN MUSIC. 1, 2. 5 credits each course
For the advanced student who wishes some help in the problem of teaching music in an individual situation. May be repeated for credit.

MSC 366—MUSIC IN THE FIELD OF RECREATION. 4 credits
The various uses of music in the field of recreation.

MSC 367—MUSIC ED. ELEM. AND MIDDLE SCHOOL K-8. 5 credits
Fundamental principles and procedures of music education in elementary school.

MSC 369—MUSIC ED. SECONDARY 9-12. 5 credits
Fundamental principles and procedures of music education in the secondary school.

MSC 390—MUSIC FOR THE ELEMENTARY CHILD. 5 credits
Prerequisite: MSC 260 or equivalent; EDF 345. Helps meet state certification requirements for elementary classroom teachers. Function of elementary school music in aiding the developmental growth of children.

MSC 460—INSTRUMENTAL MUSIC MATERIALS AND ADMINISTRATION. 4 credits
Examination, evaluation, and techniques of using instrumental materials in the music program. Fundamental principles and problems of organization and administration of this program.

MSC 461—VOCAL MUSIC MATERIALS AND ADMINISTRATION. 4 credits
Examination, evaluation, and techniques of using vocal materials in the secondary music program. Fundamental principles and problems of organization and administration of this program.

MSC 462—ELEMENTARY SCHOOL MUSIC MATERIALS AND ADMINISTRATION. 4 credits

Examination, evaluation and techniques of using materials in the elementary music program. Fundamental principles and problems of organization and administration of this program.

MSC 471, 472—LANGUAGE AND DICTION FOR SINGERS 1, 2. 1 credit each course

1 hour of class instruction per week. Open to students studying voice. Required of all music education majors whose major applied music is voice. Prerequisite: MSC 25.

ENSEMBLE COURSES

Ensemble Credit. Six Ensemble credit hours may be applied toward most non-music Bachelor degrees. In each term music majors must register for, and participate in, ensembles appropriate to their skills as required by the various music curricula.

MSC 170—UNIVERSITY ORCHESTRA. 1 credit

Prerequisite: Permission of conductor. Standard orchestra literature.

MSC 171—CHORAL UNION. 1 credit

Prerequisite: Permission of conductor. A mixed chorus. Study and performance of large choral works.

MSC 172—MEN'S GLEE CLUB. 1 credit

Prerequisite: Previous choral or instrumental experience and permission of conductor. Vocal training and public performance of standard male chorus repertoire.

MSC 173—WOMEN'S GLEE CLUB. 1 credit

Prerequisite: Previous choral or instrumental experience and permission of conductor. Vocal training and public performance of standard repertoire for women's voices.

MSC 174—UNIVERSITY BAND. 1 credit

Prerequisite: Permission of conductor. Performance of standard band literature.

MSC 175—COLLEGIUM MUSICUM. 1 credit

Prerequisite: Permission of instructor. For advanced students interested in performing early vocal and instrumental literature.

MSC 181—UNIVERSITY CHOIR. 1 credit

Prerequisite: Permission of conductor. An advanced choral group providing specialized study and performance opportunities for vocally qualified students.

MSC 182—INSTRUMENTAL ENSEMBLES. 1 credit

Prerequisite: Permission of instructor. For intermediate and advanced players interested in playing ensemble literature in areas of winds, percussion, strings, and keyboard instruments.

MSC 183—OPERA WORKSHOP. 1 credit

Prerequisite: Permission of director. Study and performance of works from opera and operetta.

GRADUATE COURSES

The Department of Music cooperates with the College of Education in offering courses leading to the degree Master of Education with a major in music education.

MSC 600—GRADUATE MUSIC SEMINAR.	0 credit
MSC 609—TOPICS IN MUSIC THEORY.	4 credits
MSC 611—METHODS OF MUSICAL RESEARCH AND BIBLIOGRAPHY	4 credits
MSC 615—TOPICS IN MUSICOLOGY.	4 credits Maximum 12 credits
MSC 621—APPLIED MUSIC.	3 credits Maximum 9 credits
MSC 630—PROJECTS AND PROBLEMS IN MUSIC.	5 credits Maximum 15 credits
MSC 667—TOPICS IN MUSIC EDUCATION.	4 credits Maximum 12 credits
MSC 669—MUSIC IN THE SCHOOLS.	2 to 9 credits
MSC 697—SUPERVISED RESEARCH.	1 to 5 credits
MSC 698—SUPERVISED TEACHING.	1 to 5 credits

For additional courses in music education, see course listings, ED. 663, 664, 665, 666, 667.

The College of Arts and Sciences

ANTHROPOLOGY
ART
ARTS AND SCIENCES—General
ASTRONOMY
BACTERIOLOGY
BIOLOGICAL SCIENCES
(See Biological Sciences, Division of)
BOTANY
CHEMISTRY
CHINESE
CLASSICAL LANGUAGES
ECONOMICS
ENGLISH
GEOGRAPHY
GEOLOGY
GERMANIC AND SLAVIC LANGUAGES
HISTORY
LATIN AMERICAN STUDIES
LIBRARY SCIENCE
MATHEMATICS
METEOROLOGY
MUSIC
PHILOSOPHY
PHYSICS
POLITICAL SCIENCE
PSYCHOLOGY
RELIGION
ROMANCE LANGUAGES
SOCIOLOGY
SPEECH
STATISTICS
SWAHILI
ZOOLOGY

Anthropology

INSTRUCTIONAL STAFF 1969-70

Fairbanks, C. H., *Chairman;* Bullard, W. A., Jr.; Carter, W. E.; Du Toit, B. M.; Hardman-de-Bautista, M. J.; Heighton, R. H., Jr.; Hoffman, C. A., Jr.; Kimball, S. T.; Maples, W. R.: Margolis, M. L.; Markel, N. N.; Moore, G. A.; Nunez, T. A., Jr.; Taylor, C. D.

An undergraduate departmental major must include APY 200, APY 300, APY 302, APY 310, APY 580, and APY 581. All undergraduates desiring a major in anthropology should contact the department academic adviser soon after enrollment in the University.

APY 200—CULTURAL ANTHROPOLOGY. 5 credits

The nature of culture. The content of cultures; languages, subsistence, economic structures, art and religion in primitive societies. The integration of culture.

APY 300—PREHISTORY OF MAN. 4 credits

Description of the archeological evidence for the evolution of man's culture from the earliest beginning to the dawn of recorded history. Analyzes causes of cultural development in the Old and New Worlds.

APY 302—PHYSICAL ANTHROPOLOGY. 4 credits

The evolution of Man and the formation of Races. Relationship with other Primates. Human Genetics. Anthropometry. Racial differences. Distribution and History.

APY 310—INTRODUCTION TO GENERAL ANTHROPOLOGICAL LINGUISTICS. 5 credits

Principles of linguistics, nature and origin of languages, linguistic analysis, linguistic and other fields, language and culture.

APY 311—PHONOLOGY. 5 credits

Phonetics and phonemics, phonemic analysis, phonological theory, transcription primary interest on non-Indo European systems. May be taken with 310 or independently.

APY 320—PRIMITIVE RELIGION. 4 credits

(Identical with RN 410) Cross cultural survey of beliefs and practices dealing with the supernatural. Magic and Religion. Conceptualization of the supernatural. Sacred specialists, their functions and social position. Theories of comparative religion in the light of primitive data.

APY 400—THE NATURE OF CULTURE. 4 credits

Not available for major credit. An advanced level introduction to Cultural Anthropology. The problems of universal functions. Pattern, structure and process. Models and cultural laws. Illustrative material from current ethnology.

APY 405—RACIAL AND CULTURAL MINORITIES. 4 credits

A survey of racial and cultural minority group contacts, inter-group relations conflicts, the nature of prejudice, and the problems of minority groups in the contemporary world. Examples will be taken from North and South America, Africa, and India.

APY 410—CONTEMPORARY PEOPLES OF LATIN AMERICA. 4 credits

Prerequisites: APY 200, or APY 400. An introduction to Latin American peoples. Native culture areas and high civilizations. Metropolitan Hispanic culture and cultural syncretism in selected and geographically varied nation-states, selected urban and peasant subcultures.

APY 430—INDIVIDUAL WORK. 4 credits

Prerequisites: 12 hours of anthropology.

APY 434—INTRODUCTION TO URBAN ANTHROPOLOGY. 4 credits
Prerequisite: APY 200. A re-examination of basic concepts, models and theories dealing with the nature of the city. The approach is cross-cultural and interdisciplinary.

APY 435—URBAN ETHNOGRAPHY. 4 credits
Prerequisite: APY 434. Problems of rural-urban migration. Cross-cultural, interdisciplinary approach to the non-western city. Comparative ecology of cities.

APY 437—NORTH AMERICAN ARCHEOLOGY. 4 credits
The existing archeological materials relating to prehistoric North American cultures. The origins of the North American Indian. Historic Indian and colonial materials.

APY 438—THE NORTH AMERICAN INDIAN. 4 credits
The peopling of North America and Early Man in the New World. The culture areas of North America. Unique characteristics, institutions, and problems of the peoples.

APY 443—AFRICA: TRADITIONAL PEOPLES AND CULTURES 4 credits
An anthropological survey of the culture history and ethnographic background of the peoples of Africa. A basis for appreciation of current problems of acculturation, nationalism, and cultural survival and change among African peoples.

APY 450—PEASANT SOCIETY AND CULTURE. 3 credits
Prerequisite: APY 200 or permission of instructor. A comparative and historical study of peasantry. Unique characteristics, institutions, and problems of peasant life, stressing especially rural-urban relationships and emphasizing European and Latin American peasant populations.

APY 471—PRIMATE BEHAVIOR. 4 credits
Prerequisite: APY 302 and permission of instructor. Behavior and social organization of various non-human primates. Relationships to human cultural behavior.

APY 472—INTRODUCTION TO PRIMATOLOGY. 4 credits
Prerequisite: APY 302. The adaptive aspects of the physical features of man, apes, monkeys, and the Prosimians. A review of the Taxonomy of Primates.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

APY 500—FIELD SESSIONS IN ARCHEOLOGY. 8 credits*
Prerequisite: 6 hours of anthropology, including APY 300. Excavation and archeological sites, recording of data, laboratory handling and analysis of specimens, and study of the theoretical principles which underlie field methods and artifact analysis.

APY 501—PRINCIPLES OF ARCHEOLOGY. 5 credits*
Prerequisites: 6 hours of anthropology, including APY 300. The viewpoint and methods of archeology, especially as applied to New World materials. The archeological survey. Methods and techniques of excavation. Systems of chronological analysis.

APY 502—PRINCIPLES OF ANTHROPOLOGICAL LINGUISTICS. 5 credits
Prerequisite: At least one course in linguistics. Linguistics theory and its application to anthropological problems, readings in linguistics, solutions of linguistic problems.

APY 503—INTRODUCTION TO LINGUISTIC FIELD METHODS. 5 credits*
Field procedures, collections, and processing of language data.

APY 504—SOCIAL ORGANIZATION. 4 credits*

Prerequisites: APY 200. Property concepts, forms, and complexes. Tribal patterns of government and social control.

APY 506—LANGUAGE AND CULTURE. 4 credits*

Prerequisite: APY 200. Principles and problems of anthropological linguistics. The origin and evolution of language. The cross-cultural and comparative study of language. Primarily concerned with the study of non-Indo-European linguistic problems.

APY 507—CULTURE AND PERSONALITY 1. 4 credits*

Prerequisites: APY 200 or senior standing. The relationship between culture and personality. Benedict's, Malinowski's, and Mead's contributions. Contemporary schools of thought up to and including studies of national character. Methods in culture and personality research.

APY 508—CULTURE AND PERSONALITY 2. 4 credits*

Prerequisite: APY 507. Examination of case studies which have been made and techniques which have been used in the field of culture and personality.

APY 517—CULTURAL REVITALIZATION. 4 credits*

Study and analysis of the background, structure, and aim of cultural movements described as messianic, Nativistic, cargo, etc.

APY 518—HUMAN ORGANIZATION AND CHANGE. 4 credits*

Prerequisite: 8 hrs. of Anthropology or permission of instructor. Theory and practice in applied anthropology. A case study approach to innovation and change in social institutions and cultural practices with emphasis upon problems of planning and administration.

APY 520—REGIONAL CULTURES OF OCEANIA. 4 credits*

Prerequisite: APY 200. Peoples and cultures of Oceania, history, social structure, kinship system, land tenure, religion, arts and crafts, reaction to modernization, ecological adaptation. Regional focus in terms of Polynesia, Micronesia, or Melanesia may vary depending on demand.

APY 540—THE TRIBAL PEOPLES OF LOWLAND SOUTH AMERICA. 4 credits*

Prerequisite: APY 200. A survey of the marginal and tropical forest hunters and gatherers and horticulturalists of the Amazon Basin, Central Brazil, Paraguay, Argentina and other areas of South America. Social organization, subsistence activities, ecological adaptations, and other aspects of tribal life will be covered.

APY 541—NATIVE PEOPLES OF MEXICO, CENTRAL AMERICA, AND THE CARIBBEAN. 4 credits*

The settlement and early cultures of the area with an emphasis on the rise of the major culture centers The impact of European civilization and the surviving Indians.

APY 542—THE PEOPLES OF BRAZIL. 4 credits*

Ethnology of Brazil. Historical, geographic, and socio-economic material will be covered and representative monographs from the various regions of Brazil will be read. The contribution of the Indian, Portuguese, and African to modern Brazilian culture.

APY 543—PEOPLES OF THE ANDES. 4 credits*

Prerequisite: APY 200. A comprehensive reading list will be distributed to the students at the begining of the term. To assist them in their studies, key community studies and articles will be placed in the Reserve room of the library. No textbook will be assigned.

APY 545—CARIBBEAN CULTURAL PATTERNS. 4 credits*

Investigation into cultural contact that has taken place in the Caribbean and results of that contact in terms of peoples and sociocultural units produced and processes of culture change that were involved.

APY 551—AFRICAN URBANIZATION. 4 credits*

Current conditions and problems flowing from detribalization, acculturation, and urbanization. Changes in values, attitudes, and institutions, as well as the reaction among the peoples of Africa in the form of traditional survivals, cultural revivals, and innovations.

APY 561—METHODS IN FIELD ETHNOLOGY 1. 4 credits*

Prerequisite: 12 hours of anthropology or permission of the instructor. Instruction in the use of various data-collecting techniques; drill given in interviewing and in observing different aspects of behavior; and instruction in setting up a research project.

APY 562—METHODS IN FIELD ETHNOLOGY 2. 4 credits*

Prerequisite: APY 561. The study of a group or a comparable set of groups. Working on the basis of a given research design, data will be gathered and analyzed, using as many various research techniques as possible.

APY 563—METHODOLOGICAL FOUNDATION FOR ANTHROPOLOGY. 4 credits*

Prerequisite: APY 200. An examination of empirical and logical basis of anthropological inquiry; analysis of theory construction, research design, problems of data collection, processing and evaluation.

APY 564—QUANTITATIVE METHODS FOR ANTHROPOLOGY 4 credits*

Prerequisite: APY 563, STA 320. An introductory survey of relevant quantitative procedures for collecting, analyzing and interpreting anthropological data.

APY 572—HUMAN EVOLUTION. 4 credits*

Prerequisite: APY 302 and consent of instructor. The data, methods, and theoretical problems found in human evolution.

APY 573—HUMAN OSTEOLOGY AND OSTEOMETRY 4 credits*

APY 580—ANTHROPOLOGICAL THEORY. 4 credits*

Prerequisites: 6 hours in Anthropology, including APY 200. The history and development of anthropological theory. Methods in anthropological research. Directed reading of major theoretical publications.

APY 581—CURRENT ANTHROPOLOGICAL THEORY. 4 credits*

Prerequisites: APY 200. Reading and discussion of current trends in anthropological literature. Emphasis on problems of research. Directed reading in major current publications.

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*Available for graduate major credit.

GRADUATE COURSES

APY 600—METHODS AND MATERIALS FOR RESEARCH. 2 credits
APY 601—PRINCIPLES OF ANTHROPOLOGY. 3 credits
APY 602—PRINCIPLES OF CULTURAL ANTHROPOLOGY. 3 credits
APY 603—PRINCIPLES OF POLITICAL AND ECONOMIC ANTHROPOLOGY. 3 credits
APY 604—PRINCIPLES OF POLITICAL ANTHROPOLOGY 4 credits
APY 605—PRINCIPLES OF ECONOMIC ANTHROPOLOGY 4 credits
APY 610—MEDICAL ANTHROPOLOGY. 4 credits
APY 611—ADVANCED ARCHEOLOGICAL FIELD METHODS. 9 credits
APY 612—ETHNOGRAPHIC FIELD METHODS 4 credits
APY 615—PROBLEMS OF NATIONAL INTERGRATION IN LATIN AMERICA 4 credits
APY 620—DIRECTED CULTURE CHANGE IN LATIN AMERICA 4 credits
APY 621—SEMINAR IN ARCHEOLOGY. 5 credits. Maximum 15 credits
APY 622—SEMINAR IN ETHNOLOGY. 5 credits. Maximum 15 credits

APY 623—SEMINAR IN PHYSICAL ANTHROPOLOGY. 5 credits
Maximum 15 credits
APY 625—MAN AND CULTURE IN SOUTHERN AFRICA. 4 credits
APY 630—INDIVIDUAL WORK. 3-5 credits. Maximum 15 credits
APY 640—SEMINAR ON THE ANTHROPOLOGY OF LATIN AMERICA.
4 credits. Maximum 12 credits
APY 645—CULTURE DYNAMICS 1. 4 credits
APY 646—CULTURE DYNAMICS 2. 4 credits
APY 661—ANTHROPOLOGY AND EDUCATION. 5 credits
APY 667—CULTURE AND COMMUNITY. 5 credits
APY 668—SEMINAR ON STRUCTURE AND PROCESS IN THE URBAN ENVIRONMENT 4 credits
APY 675—PATTERN, STRUCTURE, AND PROCESS. 5 credits
APY 697—SUPERVISED RESEARCH. 1 to 5 credits
APY 698—SUPERVISED TEACHING. 1 to 5 credits
APY 699—MASTER'S RESEARCH. 1 to 15 credits
APY 799—DOCTORAL RESEARCH. 1 to 15 credits

Art

(A major in Art is offered in Arts and Sciences. For course descriptions see College of Architecture and Fine Arts.)

Arts and Sciences
General and Cross-Departmental Courses

ASC 201—INTRODUCTION TO AFRO-AMERICAN STUDIES. 4 credits
An integrative interdisciplinary exploration serving to introduce the student to selected themes in the study of the contemporary Afro-American experience, emphasizing continuity and change in cultures and societies of people of African origin.

ASC 311—INTRODUCTION TO COMPUTING. 4 credits
(Identical with EGC 311.) Algorithms, programs and computers. Basic programming using a high level language. Data representation, conversational terminal use and batch processing techniques. Computer solution of problems.

ASC 312—COMPUTERS AND PROGRAMMING. 4 credits
(Identical with EGC 312.) Prerequisite: ASC 311. Computer structure and representation of data and instructions. Machine language and macro-assemblers. Compilers and micro-programs. Overlays and program segmentation.

ASC 321—DATA STRUCTURES. 4 credits
(Identical with EGC 321.) Prerequisite: ASC 312. Linear and orthogonal lists, strings and arrays. Graphs, directed and undirected, trees and multi-linked structures. Storage allocation systems. Storage collection, search and sorting techniques. Data structures in different languages.

ASC 322—PROGRAMMING LANGUAGES. 4 credits
(Identical with EGC 322.) Prerequisite: ASC 321. Formal definitions of languages, including syntax and semantics. Notational systems. Global properties of algorithms, including storage allocation, parallel routines and tasks. String manipulation and special languages.

ASC 341—HISTORY OF THE PHYSICAL SCIENCES. 3 credits
The origins and the growth and development of the major physical sciences and their influence upon society.

ASC 450—AFRICAN STUDIES SENIOR INTEGRATIVE SEMINAR, PART 1. 3 credits

ASC 451—AFRICAN STUDIES SENIOR INTEGRATIVE SEMINAR, PART 2. 3 credits

ASC 452—AFRICAN STUDIES SENIOR INTEGRATIVE SEMINAR, PART 3. 3 credits

ASC 453—AFRO-AMERICAN STUDIES SENIOR INTEGRATIVE SEMINAR 1. 4 credits

Prerequisites: Senior standing and permission of the advisor of the Afro-American Studies certificate program. An intensive examination of the bibliographic material and an analysis of theory, method, and special problems in the field of Afro-American studies. The relevance of different disciplines to the study of common problems will be explored.

ASC 454—AFRO-AMERICAN STUDIES SENIOR INTEGRATIVE SEMINAR 2. 4 credits

Prerequisites: ASC 453 and permission of the advisor of the Afro-American Studies certificate program. A research seminar which will include a month long conference at which scholars from diverse fields will explore in common topics of interdisciplinary interest.

ASC 485—DEPARTMENTAL MAJOR HONORS. 3 credits

Prerequisite: Status as departmental major and permission of the head of the major department. May be repeated for additional credit

ASC 487—SENIOR SEMINAR. 3 credits

Required for all candidates for any baccalaureate degree with HIGH HONORS in the College of Arts and Sciences. Prerequisite: Permission of the College. Described under the College High Honors Program in the Arts and Sciences section in this Catalog. May be repeated for additional credit, up to a maximum of 9 credits.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ASC 501, (identical with Hy 501)—ANCIENT AND MEDIEVAL SCIENCE. 3 credits*

An intensive critical study of the historical development of scientific thought from the earliest times down through the Medieval Period. Prerequisite: CPS 121, 122, 123—The Physical Sciences, or their equivalent.

ASC 502, (identical with Hy 502)—THE SCIENTIFIC REVOLUTION. 3 credits*

A critical study of the development of scientific thought from the Copernican revolution down through Newton. Prerequisite: CPS 121, 122, 123—The Physical Sciences, or their equivalent.

ASC 503, (identical with Hy 503)—SCIENCE SINCE NEWTON. 3 credits*

The development of scientific thought following Newton and down to the present day. Prerequisite: CPS 121, 122, 123—The Physical Sciences, or their equivalent.

ASC 542—HISTORY OF THE BIOLOGICAL SCIENCES. 3 credits*

(Identical with ZY 542.) The origins and the growth and development of the major biological sciences and their influences upon society. Junior standing required for admission to the course.

ASC 555—DIRECTED STUDY IN THE BACKGROUND OF SCIENCE. 3 credits

*Available for graduate major credit.

GRADUATE COURSES

ASC 641—INTERNSHIP IN COLLEGE TEACHING. 3 credits
ASC 642—INTERNSHIP IN COLLEGE TEACHING. 3 credits
ASC 643—INTERNSHIP IN COLLEGE TEACHING. 3 credits

Astronomy

INSTRUCTIONAL STAFF 1969-70

Smith, A. G., *Chairman;* Carr, T. D.; Chen, K-Y; Cohen, H. L.; Eoff, K. M.; Gleim, J. K.; Green, A. E. S.; Lebo, G. R.; Oliver, J.; Olsson, C. N.; Omer, G. C.; Prasad, S. S.; Roberts, L. H.; Wood, F. B.

Astronomy is a unit of the joint Department of Physics and Astronomy, which offers graduate degrees in astronomy at the M.S. and Ph.D. levels (see the Graduate Catalog). Because modern astronomy is almost entirely astrophysical in nature, students interested in careers in astronomy are advised to take a B.S. degree in physics with an admixture of 300- to 500-level astronomy courses. With such a background a student is well prepared to undertake, at this or other institutions, the graduate training that is essential for a professional career. Students desiring counseling on courses or careers in astronomy should consult the Chairman for Astronomy, Room 231, Space Sciences Research Building.

ATY 141—DESCRIPTIVE ASTRONOMY. 5 credits
An elementary survey of the astronomical universe for those not majoring in physical science or mathematics. Includes observational work and satisfies the requirements for a laboratory science.

ATY 241—SURVEY OF ASTRONOMY 1. 4 credits
First part of the sequence ATY 241-242. An elementary survey of the astronomical universe for those not majoring in physical science or mathematics. The level is the same as ATY 141, but the treatment is more extensive. Includes observational work and satisfies the requirement for a laboratory science.

ATY 242—SURVEY OF ASTRONOMY 2. 4 credits
Prerequisite: ATY 241. Second part of the sequence ATY 241-242.

ATY 300—BASIC ASTRONOMY FOR TEACHERS. 4 credits
Prerequisite: One year of high-school algebra. Lectures, demonstrations, and observing sessions covering selected topics in solar-system and stellar astronomy.

ATY 305—CELESTIAL NAVIGATION. 4 credits
Prerequisite: MS 102. Determination of position at sea and guidance of marine vessels. Charts, the compass, dead reckoning, piloting, navigational instruments and nautical astronomy with emphasis on fundamentals of celestial navigation.

ATY 306—CELESTIAL AND AIR NAVIGATION. 4 credits
Prerequisite: MS 102. Covers the guidance fundamentals of aircraft. Aeronautical charts, visual flight planning and procedures, relative movement, radio, navigational astronomy, time, and sight reduction.

ATY 316—GENERAL ASTRONOMY 1. 5 credits
Prerequisite: Calculus and one year of college physics. First part of the sequence ATY 316-317. A survey of the astronomical universe, primarily for majors in physical science, engineering, or mathematics. Includes observational work and satisfies the requirement for a laboratory science.

ATY 317—GENERAL ASTRONOMY 2. 5 credits
Prerequisite: ATY 316. Second part of the sequence ATY 316-317.

ATY 490—INDIVIDUAL WORK. 1 to 5 credits
Prerequisite: ATY 316-317 or two years of college physics, plus consent of instructor. Assigned reading or research for qualified undergraduates. May be repeated with change of content.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ATY 503—HISTORY OF ASTRONOMY. 3 credits*
Prerequisite: ATY 141 or ATY 316-317. A general survey of the history of astronomy from the earliest times down to the present day.

ATY 510—SOLAR SYSTEM ASTROPHYSICS 1. 3 credits*
Prerequisite: Two years of college physics. First half of the sequence ATY 510-511. Physics of the sun, planets, and lesser bodies of the solar system; the interplanetary medium. The earth as a planet, with emphasis on the upper atmosphere and magnetosphere.

ATY 511—SOLAR SYSTEM ASTROPHYSICS 2. 3 credits*
Prerequisite: ATY 510. Second half of the sequence ATY 510-511.

ATY 521—PRACTICAL ASTRONOMY 1. 3 credits*
Prerequisites: ATY 317, mathematics through differential calculus, or consent of instructor. Mathematical methods used in positional astronomy: spherical trigonometry, numerical analysis, refraction, aberration, precession, nutation, parallax, reductions to apparent place, methods of dependences and least squares.

ATY 522—PRACTICAL ASTRONOMY 2. 3 credits*
Prerequisite: ATY 521. Continuation of ATY 521.

*Available for graduate major credit.

GRADUATE COURSES

ATY 601—CELESTIAL MECHANICS 1. 3 credits
ATY 602—CELESTIAL MECHANICS 2. 3 credits
ATY 605—STELLAR ASTROPHYSICS 1. 3 credits
ATY 606—STELLAR ASTROPHYSICS 2. 3 credits
ATY 607—STELLAR ASTROPHYSICS 3. 3 credits
ATY 608—GALACTIC STRUCTURE. 3 credits
ATY 611—RADIO ASTRONOMY 1. 3 credits
ATY 612—RADIO ASTRONOMY 2. 3 credits
ATY 613—RADIO ASTRONOMY 3. 3 credits
ATY 621—ASTRONOMICAL TECHNIQUES 1. 3 credits
ATY 622—ASTRONOMICAL TECHNIQUES 2. 3 credits
ATY 631—EXTRAGALACTIC ASTRONOMY AND COSMOLOGY. 3 credits
ATY 633—RADIOPROPAGATION AND IONOSPHERIC PHYSICS 1. 3 credits
ATY 634—RADIOPROPAGATION AND IONOSPHERIC PHYSICS 2. 3 credits
ATY 636—PHYSICS OF PLANETARY ATMOSPHERES 1. 3 credits
(Identical with PS 636).
ATY 637—PHYSICS OF PLANETARY ATMOSPHERES 2. 3 credits
(Identical with PS 637).
ATY 638—PHYSICS OF PLANETARY ATMOSPHERES 3. 3 credits
(Identical with PS 638).
ATY 641—BINARY STARS 1. 3 credits
ATY 642—BINARY STARS 2. 3 credits
ATY 651—VARIABLE STARS. 3 credits
ATY 690—INDIVIDUAL WORK. 1 to 5 credits. Maximum 10 credits
ATY 697—SUPERVISED RESEARCH. 1 to 5 credits
ATY 698—SUPERVISED TEACHING. 1 to 5 credits

ATY 699—MASTER'S RESEARCH.	1 to 15 credits
ATY 741—CLOSE BINARY STARS.	3 credits
ATY 799—DOCTORAL RESEARCH.	1 to 15 credits

Bacteriology

(A major in Bacteriology is offered in Arts and Sciences. For course descriptions see College of Agriculture.)

Botany

(A major in Botany is offered in Arts and Sciences. For course descriptions see College of Agriculture.)

Chemistry

INSTRUCTIONAL STAFF 1969-70

Jones, W. M., *Chairman;* Bates, R. G.; Battiste, M. A.; Baxter, J. F.; Bennett, L. E.; Brandas, E. J.; Brey, W. S., Jr.; Brown, H. C.; Bruns, R. E.; Cheves, F. A.; Colgate, S. O.; Cram, S. P.; Deyrup, J. A.; Dresdner, R. D.; Fallgatter, M. B.; Fiorino, J. A.; Gabbay, E. J.; Hanrahan, R. J.; Helling, J. F.; Joines, R. C.; Löwdin, P. O.; Luckhaupt, A. E.; Micha, D. A.; Muga, M. L.; Muschlitz, E. E., Jr.; Myers, G. H.; Nelson, R. N.; Ohrn, N. Y.; Person, W. B.; Reid, C. E.; Ryschkewitsch, G. E.; Schmid, G. M.; Sisler, H. H.; Slater, J. C.; Stearns, T. W.; Stoufer, R. C.; Tarrant, P.; Vala, M. T.; Weltner, W., Jr.; Winefordner, J. D.; Zoltewicz, J. A.

Minimum Program: To meet the minimum requirement for a major in chemistry, the student must obtain credit for the following courses or their equivalent Cy 202-203-204 or Cy 211-212-213; Cy 331, Cy 371-372-373-374-375 and Cy 341-342-343-431 or Cy 341-342-343-432 or Cy 451-452-453-454.

A. C. S. Certified Program: The following program is designed primarily for the undergraduate who plans to make chemistry his profession. This program is open to all chemistry majors. Those students who complete this program will be certified to the American Chemical Society as having met the minimum requirements for a professional degree. To obtain this certification, the student must obtain credit for the following courses, or their equivalent: Cy 202-203-204 or Cy 211-212-213, Cy 331, Cy 371-372-373-374-375. Cy 431 or Cy 432, Cy 451-452-453-454-455 and Cy 511. In addition, he must obtain credit for at least 6 additional hours of advanced chemistry courses. At least two of the advanced chemistry courses must be laboratory courses. The student must meet the foreign language requirement in German or Russian. He is advised, when possible, to complete the following or their equivalent during his *first two years:* Six quarters of chemistry, PS 215-216-217-225-226-227 and MS 301-302-303-304.

Pre-professional students (*pre-med., pre-dent., etc.*) Normally complete the minimum program and whatever part of the certified program as is feasible. They are also normally advised to obtain credit for MS 301-302-303, PS 211-212-213-221-222-223 or PS 215-216-217-225-226-227, Zy 309 and Zy 310.

For additional information, see College of Arts and Sciences Entrance requirements or Dr. J. A. Deyrup in 328A Chemistry Research Building.

Department Major Honors. To qualify for Honors in Chemistry a student must attain a 3.0 average in all chemistry work attempted and complete the following with at least a B grade: One 3 credit 500-level chemistry course and 6 additional credits from either CY 223 (honors), CY 379 (honors) and/or any chemistry courses numbered above 400.

General Chemistry: Four sequences of beginning chemistry are offered: CY 101-102, CY 201-202-203-204, CY 211-212-213 and CY 231-232-330. CY 101-102 is a terminal course, not open to science and engineering students. CY 231-232-330, an intergrated course in general and analytical chemistry, is being offered for the first time this year and is open *only* to students who intend to take two or more academic years of chemistry courses. It is a trial program and each course of the sequence will be offered only once, starting with CY 231 in the fall quarter, in the coming year. Only 60 students will be accepted for CY 231.

CY 201-202-203-204, is for students who prefer to register for the equally rigorous but slower paced four quarter sequence. If this sequence is chosen the student is committed to remain in it to complete his general chemistry requirement.

CY 211-212-213, is *recommended* for those students who have successfully completed three years of high school mathematics including algebra, geometry, exponents, and logarithms, a one year high school chemistry course, have completed some high school physics, and have achieved a score of 85 (530 SAT) or higher on the mathematics portion of the Florida 12th grade testing program and a total score of not less than 420 in the 5 divisions of the same test (or the SAT equivalent of 1080).

Both sequences CY 201-202-203-204, and CY 211-212-213, cover the same topical material and each sequence when successfully completed meets the requirements for General Chemistry and is prerequisite for further courses in chemistry. Students who have successfully completed any quarter of either general chemistry sequence may not cross over and enroll for the second, third or fourth quarter in the other sequence.

Transfer students from out of state or from Florida Junior Colleges who have had some previous chemistry should consult with the General Chemistry Office before attempting to register for a general chemistry course. Questions relating to the general chemistry program should be directed to the General Chemistry Office in 242 Leigh Hall. Phone 392-0558. Chemistry majors should consult with Dr. J. A. Deyrup in 328A Chemistry Research Building.

Most transfer students who have completed one semester or one or two quarters at some other university or junior college should be placed in the CY 201 sequence, rather than the CY 211 sequence.

Generally, students who are forced to make a choice between the two sequences should be advised that primarily English and math scores are much more meaningful than science scores in beginning chemistry. A student with an English score in the 12th grade placement below 75 (500 SAT) will face difficulties in both sequences.

CY 101—ELEMENTS OF CHEMISTRY. 4 credits

The first half of the course CY 101-102. A terminal course presenting selected topics in inorganic and organic chemistry emphasizing the contributions of chemistry to modern society. There are four classes per week for lectures, demonstrations and carrying out in class experiments.

CY 102—ELEMENTS OF CHEMISTRY. 4 credits

The second half of CY 101-102.

CY 201—INTRODUCTORY GENERAL CHEMISTRY. 4 credits

The first quarter of the CY 201-202-203-204 sequence. An introduction to the elementary principles of modern chemistry, including concepts of science, stoichiometry, atomic and molecular structure, chemical bonding and the properties of gases. Designed for students who require or prefer a slower pace than that followed in the sequence that begins with CY 211. Unless a student has taken three years of high school mathematics and achieved a score of 85 (or the SAT equivalent 530) or higher in the mathematics portion of the Florida 12th grade testing program, it is strongly recommended that he has had or that he takes simultaneously MS 101 or MS 102 whichever applies. This course is to be followed by CY 202 but this will be allowed only if a grade of "C" or better has been earned in CY 201.

CY 202—GENERAL CHEMISTRY. 4 credits

Prerequisite CY 201 or its equivalent with a grade of C or better. The second quarter of the CY 201-202-203-204 sequence principles of chemistry, the liquid and solid state, solutions and their colligative properties, chemical kinetics and chemical equilibrium. Related laboratory experiments.

CY 203—GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. 4 credits

Prerequisite: CY 202. Third quarter of the CY 201-202-203-204 sequence. The chemistry of the non-metals, introduction to organic chemistry, topics on chemical equilibrium, and electrochemistry. Laboratory experiments in chemical equilibrium and qualitative analysis of cations and anions.

CY 204—GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. 4 credits

Prerequisite: CY 203. Final quarter of the CY 201-202-203-204 sequence. Electrochemistry, the chemistry of the metals and their compounds, complex ions, laboratory experiments involving the separation and detection of cations in aqueous solution.

CY 211—GENERAL CHEMISTRY. 4 credits

It is strongly recommended that students who enroll for this course have had a rigorous one or two year course in high school chemistry, some high school physics, three years of high school mathematics, including algebra, geometry, exponents and logarithms, and achieved a score of 85 or higher (or the SAT equivalent of 530) on the mathematics portion and a total of 420 (or the SAT equivalent of 1080) or higher in the Florida 12th grade testing program.

Students who have ever enrolled for CY 201 or its equivalent or who have had no chemistry for a number of years should not enroll in this course without consulting the General Chemistry Office. If there is any doubt of the student's fitness for this course the General Chemistry Office in 242 Leigh Hall should be consulted. First quarter of the CY 211-212-213 sequence: Principles of chemistry, atomic and molecular structure, chemical bonding, stoichiometry, the properties and structure of gases, liquid and solids. Related laboratory experiments.

CY 212—GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. 4 credits

Prerequisite: CY 211. Second quarter of CY 211-212-213 sequence. Continuation of chemical principles, solutions and their colligative properties, chemical kinetics, chemical equilibrium and electrochemistry; the descriptive chemistry of some elements. Related laboratory experiments in acid-base chemistry and qualitative analysis of some cations and anions.

CY 213—GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. 4 credits

Prerequisite: CY 212. Third quarter of the CY 211-212-213 sequence. Systematic chemistry of the metals and non-metals, the chemistry of complex ions, elements of organic chemistry. Qualitative analysis of selected cations and anions.

CY 221—GENERAL CHEMISTRY HONORS. 4 credits

First course of the sequence CY 221-222-223 which has the same goals as the sequence CY 211-212-213, but is open mainly to students with a very good background, who desire a chemistry course with more depth. Enrollment in this course is achieved only through the *invitational honors program* or with the permission of the department of chemistry. This course is offered only in the fall quarter.

CY 222—GENERAL CHEMISTRY HONORS. 4 credits

Prerequisite: CY 221 or special permission of the department of chemistry. Second quarter of the CY 221-222-223 sequence.

CY 223—GENERAL CHEMISTRY HONORS. 4 credits

Prerequisite: CY 222. Third quarter of the sequence CY 221-222-223.

CY 231—CHEMICAL PRINCIPLES. 5 credits

Open only to those students who desire or need to take almost more than two academic years of chemistry (31 hours), for example, chemistry or chemical engineering majors, zoology, premedical, predental, preveterinary medicine, pharmacy

students and others. Successful completion of this course along with CY 232 and CY 330 enables the student to complete both general and analytical chemistry in an integrated sequence in one academic year (15 quarter hours). This is the first time this course is being offered and is open to only 60 students. An introduction to the basic principles of chemistry and the chemistry of oxygen and hydrogen. Related laboratory experiments.

CY 232—PRINCIPLES OF CHEMISTRY AND QUALITATIVE ANALYSIS. 5 credits

Prerequisite: CY 231. (No exceptions). The second quarter of the sequence CY 231-232-330. A continuation of chemical principles and the chemistry of the metals and non metals. The laboratory will emphasize the qualitative analysis of various cations and anions.

CY 300—BEGINNING CHEMISTRY FOR TEACHERS. 3 credits

This course is designed as an introduction to chemical science for junior high school science teachers, to form part of a summer institute for these teachers. Not open for credit for chemistry majors.

CY 330—QUANTITATIVE ANALYSIS. 5 credits

Prerequisite: CY 232. (No exceptions). Principles and laboratory techniques of basic quantitative analysis including the topics of acid-base equilibria, precipitations, complexation, oxidation reduction, electrochemistry and spectrophotometry.

CY 331—QUANTITATIVE ANALYSIS. 5 credits

Prerequisite: CY 204 or 213. Principles and laboratory techniques involved in quantitative analysis. Topics include: acid-base equilibria and titrations; precipitation and complex formation; oxidation-reduction; statistical treatment of data; sampling methods.

CY 332—QUANTITATIVE ANALYSIS—Honors. 5 credits

This course will cover the subject material of CY 331 in greater depth. Prerequisite: Three quarters of college chemistry or its equivalent *and* consent of instructor.

CY 341—PHYSICAL CHEMISTRY. 4 credits

Prerequisites: CY 331, MS 302. Corequisites CY 371 or 362. The first half of the course 341-342. Properties of solutions, chemical equilibrium, pH, the colloidal state; particular emphasis on biochemical applications. Designed primarily for students of medicine, pharmacy, biology, and related fields.

CY 342—PHYSICAL CHEMISTRY. 3 credits

The second half of the course 341-342.

CY 343—PHYSICAL CHEMISTRY LABORATORY. 1 credit

Prerequisite: CY 341. Corequisite: CY 342. A series of laboratory experiments designed to accompany CY 342.

*CY 362—ORGANIC CHEMISTRY. 4 credits

Prerequisite: CY 204 or 213. Corequisite: CY 363. A brief elementary course embracing the more important aliphatic and aromatic compounds.

CY 363—ORGANIC CHEMISTRY LABORATORY. 2 credits

Corequisite: CY 362. Organic laboratory experiments to accompany CY 362.

CY 371—ORGANIC CHEMISTRY. 3 credits

Prerequisite: CY 204 or 213. The first third of the course CY 371-372-373. A study of the nomenclature, preparations, reactions and electronic and structural features of carbon-containing compounds.

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*This lecture course may not be taken without the corresponding laboratory course without permission of the Chairman of the Chemistry Department, unless the student is majoring in physics or chemical engineering.

CY 372—ORGANIC CHEMISTRY. 3 credits
Corequisite CY 374. The second third of the course CY 371-372-373.

CY 373—ORGANIC CHEMISTRY. 3 credits
Corequisite: CY 375. The final third of the course CY 371-372-373.

CY 374—ORGANIC CHEMISTRY LABORATORY. 1 credit
Prerequisite: CY 371. Corequisite: CY 372. Organic laboratory experiments to accompany CY 372.

CY 375—ORGANIC CHEMISTRY LABORATORY. 2 credits
Prerequisite: CY 372. Corequisite: CY 373. Organic laboratory experiments to accompany CY 373.

CY 376—ORGANIC CHEMISTRY LABORATORY. 3 credits
Prerequisites: CY 373 and 375. Advanced organic laboratory for the identification and preparation or aromatic and aliphatic compounds.

CY 377—ORGANIC CHEMISTRY—HONORS. 3 credits
Prerequisite: 3 quarters of college chemistry or its equivalent and consent of instructor. This course will cover the subject material of CY 371 in greater depth.

CY 378—ORGANIC CHEMISTRY—HONORS. 3 credits
Corequisite: CY 374. A continuation of material of CY 377.

CY 379—ORGANIC CHEMISTRY—HONORS. 3 credits
Corequisite: CY 375. A continuation of CY 378.

CY 400—CHEMISTRY FOR TEACHERS. 5 credits
Prerequisites: CY 204 or 213. This course is designed primarily for teachers who wish to expand either their background in chemistry or to refresh themselves with a modern approach. It will consist of a combination of lecture and laboratory work, reviewing fundamentals of chemistry and stressing recent developments and techniques in the field.

CY 431—INSTRUMENTAL ANALYSIS. 4 credits
Prerequisites: CY 331 or its equivalent, MS 302 or PS 212 or equivalent. Principles and laboratory techniques involved in electrochemical methods of analysis and an introduction to electronics and instrumentation.

CY 432—INSTRUMENTAL ANALYSIS. 4 credits
Prerequisites: CY 331 or its equivalent, MS 302 and PS 212 or equivalent. Principles and laboratory techniques involved in chromatographic separation and emission and absorption spectrochemical methods of analysis.

CY 451—PHYSICAL CHEMISTRY. 4 credits
Prerequisite: PS 217. Corequisite: MS 305. Introduction to quantum theory, atomic and molecular structure, chemical bonding.

CY 452—PHYSICAL CHEMISTRY. 3 credits
Prerequisite: PS 217. Corequisite: MS 305. Chemical thermodynamics, solutions, homogeneous and heterogeneous equilibria, electrochemistry.
NOTE CY 451 and CY 452 may be completed in either order.

CY 453—PHYSICAL CHEMISTRY. 3 credits
Prerequisites: CY 451 and CY 452. Chemical statistics, kinetic theory, chemical kinetics.

CY 454—PHYSICAL CHEMISTRY LABORATORY. 2 credits
Corequisite: CY 331, or consent of instructor; CY 452. A series of laboratory experiments designed to accompany CY 452.

CY 455—PHYSICAL CHEMISTRY LABORATORY. 2 credits
Prerequisite: CY 454. Corequisite: CY 453. A series of laboratory experiments designed to accompany CY 453.

CY 480—CHEMISTRY FOR JUNIOR COLLEGE TEACHERS. 5 credits
Prerequisites: At least one full year of college chemistry; and faculty status in a recognized junior college, or permission of the Dept. of Chemistry. A review of the most recent developments in inorganic, organic, and theoretical chemistry which are appropriate to the junior college curriculum. Not open for credit for chemistry majors or chemistry graduate students.

CY 481—CHEMICAL LITERATURE. 1 credit
Prerequisite: 3 years of chemistry. A reading knowledge of French and German is desirable. The present sources of published chemical information.

CY 499—SENIOR RESEARCH. 2 to 5 credits
Prerequisite or corequisite: CY 481, senior standing and consent of instructor. Laboratory or literature investigations of chemical problems of current interest. May be repeated for additional credit.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

CY 511—INORGANIC CHEMISTRY. 4 credits*
Prerequisite: 13 quarter hours 300 level chemistry courses. Periodic properties and reactivities of the elements. Inorganic stereochemistry. Ionic compounds and the crystalline state. Acid-base chemistry.

CY 542—PHYSICAL CHEMISTRY. 3 credits*
Prerequisite: CY 453. Elements of molecular structure and molecular spectroscopy, intermolecular forces, dielectric and magnetic properties of matter, chemistry of the solid state.

CY 543—ADVANCED PHYSICAL CHEMISTRY LABORATORY. 3 credits*
Prerequisite: CY 455. Laboratory techniques frequently required in experimental research techniques of design and fabrication of scientific apparatus. Advanced experiments involving optical, electronic, and high vacuum equipment.

CY 544—SCIENTIFIC GLASS BLOWING. 1 credit
Prerequisite: Consent of instructor. The application of glass working techniques to the fabrication of scientific apparatus.

CY 545—CHEMICAL COMPUTATION. 3 credits*
Prerequisites: CY 453 and a knowledge of FORTRAN Programming. Solution of difficult chemical problems in equilibrium, kinetics, spectroscopy, etc. Applications of computers to chemical research—control of experimental procedures, data reduction, etc.

CY 550—RADIOCHEMISTRY. 3 credits*
Prerequisite: CY 342, or CY 453, or consent of instructor. Properties of radioactive nuclei, nature of radioactivity, nuclear structure, nuclear reactions, interaction of radiation with matter, chemical aspects of radioactivity, and applications of nucleonics to chemistry.

CY 551—RADIOCHEMISTRY LABORATORY. 2 credits*
Prerequisites: CY 331 and CY 342, or CY 453, or consent of instructor. Radioactivity detection, radiochemical separations and analyses, radiochemistry laboratory techniques, the practice of radiological safety, and tracer applications of radioisotopes in chemistry and other fields.

CY 565—ORGANIC CHEMISTRY. 2 credits*

Prerequisite: CY 373, Corequisite: CY 566. Typical reactions which are utilized in the synthesis and proof of structure of organic compounds.

CY 566—ORGANIC CHEMISTRY LABORATORY. 3 credits*

Prerequisite: CY 375. Corequisite: CY 565. The qualitative detection of functional groups and quantitative determination of carbon, hydrogen and nitrogen in organic compounds. Laboratory techniques, methods for oxidation and reduction, high pressure catalytic reactions and material costs of certain syntheses are studied.

CY 578—CHEMISTRY OF BIOLOGICAL MOLECULES. 4 credits*

Identical with BCH 578. Prerequisite: Organic Chemistry (CY 373 or CY 379), and Physical Chemistry (CY 453 or CY 342) or consent of instructor. Mechanistic organic biochemistry. Emphasis on Model Systems, Enzyme active sites, and physical and organic chemistry of biomacromolecules.

CY 590—INDIVIDUAL PROBLEMS. 2 to 5 credits*

An assigned reading program, or the development of an assigned experimental problem. Prerequisite: permission of the faculty member supervising the work. May be repeated for additional credit. Double registration permitted.

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*Available for graduate major credit.

GRADUATE COURSES

CY 600—CHEMICAL BONDING AND SPECTRA. 5 credits
CY 610—INORGANIC PREPARATIONS. 5 credits
CY 612—ADVANCED INORGANIC CHEMISTRY. 4 credits
CY 615—CHEMISTRY OF THE NONMETALS. 3 credits
CY 616—CHEMISTRY OF THE METALS. 3 credits
CY 617—SPECIAL TOPICS IN INORGANIC CHEMISTRY. 1 to 3 credits
Maximum 15 credits
CY 618—INORGANIC CHEMISTRY SEMINAR. 1 credit
CY 629—CHEMICAL PHYSICS. 3 credits
CY 635—SEPARATION METHODS AND ANALYSES. 4 credits
CY 636—SPECTROCHEMICAL METHODS OF ANALYSIS. 4 credits
CY 637—ELECTROCHEMISTRY. 4 credits
CY 638—ANALYTICAL CHEMISTRY SEMINAR. 1 credit
CY 639—SPECIAL TOPICS IN ANALYTICAL CHEMISTRY. 2 credits
Maximum 12 credits
CY 641—CHEMICAL THERMODYNAMICS. 3 credits
CY 642—KINETIC THEORY. 3 credits
CY 643—STATISTICAL THERMODYNAMICS. 3 credits
CY 644—CHEMICAL KINETICS. 4 credits
CY 645—INTRODUCTION TO MOLECULAR SPECTROSCOPY. 4 credits
CY 647—QUANTUM THEORY OF MATTER 1. 4 credits
CY 648—QUANTUM THEORY OF MATTER 2. 4 credits
CY 649—QUANTUM THEORY OF MATTER 3. 4 credits
CY 650—SPECIAL TOPICS IN PHYSICAL CHEMISTRY. 1 to 3 credits
Maximum 15 credits
CY 653—PHYSICAL CHEMISTRY OF SURFACES. 3 credits
CY 654—COLLOIDS. 2 credits
CY 655—ELEMENTS OF QUANTUM CHEMISTRY. 3 credits
CY 657—NUCLEAR CHEMISTRY. 3 credits
CY 658—RADIATION CHEMISTRY. 2 credits
CY 659—PHOTOCHEMISTRY. 2 credits
CY 660—ORGANIC PREPARATIONS. 4 credits
CY 661—ADVANCED ORGANIC CHEMISTRY. 3 credits
CY 662—ADVANCED ORGANIC CHEMISTRY. 3 credits
CY 663—ADVANCED ORGANIC CHEMISTRY. 3 credits
CY 668—CHEMISTRY OF HIGH POLYMERS. 2 credits
CY 669—HIGH POLYMER CHEMISTRY LABORATORY. 2 credits

CY 670—ORGANIC CHEMISTRY SEMINAR. 1 credit
CY 671—PHYSICAL-ORGANIC CHEMISTRY. 2 credits
CY 672—ORGANIC FLUORINE CHEMISTRY. 3 credits
CY 673—ORGANOMETALLIC COMPOUNDS. 2 credits
CY 674—FREE RADICAL REACTIONS. 2 credits
CY 675—THE CHEMISTRY OF HETEROCYCLIC COMPOUNDS. 2 credits
CY 676—ORGANIC REACTION MECHANISMS. 3 credits
CY 677—SPECIAL TOPICS IN ORGANIC CHEMISTRY. 2 credits
CY 697—SUPERVISED RESEARCH. 1 to 5 credits
CY 698—SUPERVISED TEACHING. 1 to 5 credits
CY 699—MASTER'S RESEARCH. 1 to 15 credits
CY 756—THEORY OF ATOMIC AND MOLECULAR STRUCTURE 1. 3 credits
CY 757—THEORY OF ATOMIC AND MOLECULAR STRUCTURE 2. 3 credits
CY 799—DOCTORAL RESEARCH. 1 to 15 credits

Chinese*

INSTRUCTIONAL STAFF 1969-70

Ch'u, C. C.

CH 133—FIRST-YEAR CHINESE. 4 credits

CH 134—FIRST-YEAR CHINESE. 4 credits
Prerequisite: CH 133 or equivalent.

CH 135—FIRST-YEAR CHINESE. 4 credits
Prerequisite: CH 134 or equivalent.

CH 201—SECOND-YEAR CHINESE. 4 credits
Prerequisite: CH 135 or equivalent.

CH 202—SECOND-YEAR CHINESE. 4 credits
Prerequisite: CH 201 or equivalent.

CH 203—SECOND-YEAR CHINESE. 4 credits
Prerequisite: CH 202 or equivalent.

* Administered by the Department of Romance Languages and Literatures

Classical Languages*

INSTRUCTIONAL STAFF 1969-70

Lamb, R.; Vigorita, J.

An undergraduate major in Greek and Latin consists of 36 quarter hours above the second-year level, plus a subsidiary requirement of FLE 301 or FLE 351.

Greek

GK 111—GREEK LIFE AND LETTERS: CLASSICAL ARCHAEOLOGY. 4 credits
No Prerequisite. Illustrated lectures on archaeology, its processes of discovery and methods. History of major archaeological exploration in Mediterranean lands compared with extant literary information.

* Administered by the Department of Romance Languages and Literatures

GK 117—GREEK LIFE AND LETTERS: THE GREEK DRAMA. 4 credits
No Prerequisite. The classical Greek theater. Archaeological remains of important theaters. Selected plays of Aeschylus, Sophocles, Euripides, Aristophanes, and Menander in translation.

GK 133—FIRST-YEAR GREEK. 3 credits

GK 134—FIRST-YEAR GREEK. 3 credits
Prerequisite: GK 133, or the equivalent.

GK 135—FIRST-YEAR GREEK. 3 credits
Prerequisite: GK 134, or the equivalent.

GK 201—SECOND-YEAR GREEK. 3 credits
Prerequisite: GK 135, or the equivalent. The translation of Plato's *Apology*. Grammar study.

GK 202—SECOND-YEAR GREEK. 3 credits
Prerequisite: GK 201, or the equivalent. The translation of Plato's *Crito*, parts of the *Phaedo*, and selections from Xenophon's *Memorabilia*. Grammar study.

GK 203—SECOND-YEAR GREEK. 3 credits
Prerequisite: GK 202, or the equivalent.

GK 530—INDIVIDUAL WORK. 4 credits
Prerequisite: GK 203, or the equivalent. Readings, conferences and reports. With change of content, may be elected for additional credit.

Latin

LN 111—ROMAN LIFE AND LETTERS: ANCIENT MYTHOLOGY. 4 credits
The development, importance and influence of Greco-Roman Mythology. The main Latin and Greek literary sources read in translation.

LN 133—FIRST-YEAR LATIN. 3 credits

LN 134—FIRST-YEAR LATIN. 3 credits
Prerequisite: LN 133, or the equivalent.

LN 135—FIRST-YEAR LATIN. 3 credits
Prerequisite: LN 134, or the equivalent.

LN 201—SECOND-YEAR LATIN. 3 credits
Prerequisite: LN 135, or the equivalent.

LN 202—SECOND-YEAR LATIN. 3 credits
Prerequisite: LN 201, or the equivalent.

LN 203—SECOND-YEAR LATIN. 3 credits
Prerequisite: LN 202, or the equivalent.

LN 307—SURVEY OF LATIN LITERATURE 1. 4 credits
Prerequisite: LN 203, or the equivalent. Study of representative texts from National and early Classical periods.

LN 308—SURVEY OF LATIN LITERATURE 2. 4 credits
Prerequisite: LN 203, or the equivalent. Study of representative texts of the age of Cicero and Augustus.

LN 309—SURVEY OF LATIN LITERATURE 3. 4 credits
Prerequisite: LN 203, or the equivalent. Study of representative texts of Post-Augustan Literature: The Silver Age.

COURSE FOR ADVANCED UNDERGRADUATES AND GRADUATES

LN 599—SPECIAL STUDY IN LATIN. 4 credits*
Prerequisite: LN 309, or the equivalent. Available for graduate major credit. With change of content, may be elected for additional credit.

GRADUATE COURSES

LN 600—SPECIAL STUDY IN LATIN LITERATURE. 5 credits
Maximum 15 credits
LN 620—HISTORY OF THE LATIN LANGUAGE. 5 credits
LN 630—INDIVIDUAL WORK. 3 to 5 credits. Maximum 15 credits
LN 697—SUPERVISED RESEARCH. 1 to 5 credits
LN 698—SUPERVISED TEACHING. 1 to 5 credits
LN 699—MASTER'S RESEARCH. 1 to 15 credits

Economics

(A major in Economics is offered in Arts and Science. For course descriptions see College of Business Administration.)

English

INSTRUCTIONAL STAFF 1969-70

Morris, A. C., *Acting Chairman;* Algeo, J. T.; Beirne, R. M.; Beyette, T. K.; Bigelow, G. E.; Block, G. H.; Bloodworth, B. E.; Bowers, R. H.; Bradshaw, J. P.; Brantley, R. E.; Byron, K. H.; Carnell, C. S.; Childers, W. C.; Cox, E. H.; Crews, H. E.; Deakin, M. F.; Dell, Y C.; Dwyer, R. A.; Fain, J. T.; Gehan, F .E.; Geoghegan, P. M.; Graeffe, L B.; Haggerty, J. J.; Harder, J. C.; Hellstrom, W.; Herbert, T. W.; Hodges, J. R.; Holden, E S.; Kendall, K. E.; Kirkland, E. C.; Kirkpatrick, M. S.; Lambert, R. E.; Lisca, P.; Long, S. G.; Lucht, C. R.; McCarthy, K. M.; Miles, G. S.; Moss, H. G.; Murphree, A. A.; New, M.; Ochester, E. F.; Oras, A.; Ormond, W. N.; Penrod, J. A.; Pickard, J. B.; Robinson, W. R.; Roscelli, W. J.; Siegel, J. H.; Spivey, H. E.; Stryker, P. D.; Thompson, I.; Thurston, P. T.; Vogel, J. F.; Waldo, T. R.; Walker, B. H.; Warn, M. F.; Wilkinson, C. W.; Williams, A. L.

Students in the lower division who intend to major in English should consult as soon as possible with a Departmental adviser to plan and begin their programs. As many of the 200 and 300-level courses as would seem advisable should be taken before admission to the College of Arts and Sciences. For, once the student has acquired a total of 96 hours, he is limited thereafter in his major to 45 hours of the last 90 that may be counted towards the degree. The prospective English major is especially advised to include EH 221-222 (Survey of English Literature), for a knowledge of the authors and works covered therein will be presumed, whichever program below is elected. Similarly, courses in classical (in translation) and Biblical literature, including the Old Testament, are strongly recommended. A foreign language should be elected at least as early as the sophomore year.

Admission of lower division students to courses numbered 400 and above must have the approval of a Departmental adviser. EH 302, EH 303, EH 403, and courses designated CEH may not be counted for credit towards the major.

The Departmental Major: There are three programs which English majors may pursue according to their educational objectives. The minimum number of credits required in each is 36, or 39, depending upon which program is elected.

A. *Terminal.* For the general student. Minimum requirements are (a) four courses (16 hours), on the 300-level or above, of *English* literature in four different historical periods before 1900 (Medieval: EH 421, EH 423; Renaissance: EH 431, EH 432, EH 433, EH 434, EH 436-437, EH 438; Neoclassic: EH 315, EH 441-442, EH 443; Romantic: EH 451-452; Victorian: EH 316, EH 461-462); (b) at least two courses (a minimum of 8-9 hours) in World Literature (EH 214-215-216, EH 411-412, EH 414-415); (c) approved electives (11-12 hours). Total 36 hours.

B. *Certification.* For those students who wish to be certified to teach in the secondary schools. Minimum requirements are (a) Survey of English Literature (EH 221-222, 8 hours); (b) Shakespeare (EH 431 or 432, 4 hours); (c) two "period" courses in two different periods (EH 436 or 437, EH 441 or 442, EH 451 or 452, EH 461 or 462, 8 hours); (d) two courses in American Literature on the 400-level, one of which should include contemporary writers, otherwise an additional course in contemporary literature will be required (EH 471, EH 472, EH 473, EH 474, 8 hours); (e) two courses in Linguistics, including modern English grammar (EH 304, EH 305, EH 401, EH 402); (f) a course in advanced composition (EH 301, EH 330, EH 391, 3 hours). Total 39 hours.

In addition, the student must have (a) two Speech courses: one in the fundamentals of Speech (SCH 201) and a second in, normally, oral interpretation (SCH 224); (b) six courses in Education, including the internship (a total of 39-40 hours, of which only 24 will be counted towards the Arts and Sciences degree). See the appropriate pages in the College of Education section of this Catalogue.

C. *Pre-Graduate.* For those students who intend to pursue graduate studies in English. Minimum requirements are (a) two major author courses (EH 421, EH 431 or 432, EH 433, EH 434, 8 hours); (b) four period courses in four different periods (EH 436 or 437, EH 441 or 442, EH 451 or 452, EH 461 or 462, 16 hours); (c) two American Literature courses on the 400-level (EH 471, EH 472, EH 473, EH 474, 8 hours); (d) one course in Linguistics (EH 401, 4 hours). Total 36 hours. One Honors course may be substituted for one of the above with the approval of the adviser.

Honors. To graduate with honors requires the recommendation of the Department, which can be obtained by earning satisfactory grades ("A" or "B") in two terms of EH 485, the Honors Seminar, which may be repeated (total 10 hours). *To graduate with College or High Honors one must elect programs B or C above.* One may receive Departmental Honors under any of the three programs.

Exceptions. In exceptional cases, specified Departmental requirements, including prerequisites, may be waived with the approval of a Departmental adviser. When appropriate, EH 485 and EH 499 may be substituted for one, or two, of the period or major author courses at the discretion of the student's adviser.

EH 214—INTRODUCTION TO WORLD LITERATURE: ORIENTAL AND CLASSICAL. 3 credits

Prerequisite: CEH 131-132-133. The first quarter of an introductory course on the backgrounds of English and American letters: a survey of ancient, medieval, and modern literature read in translation.

EH 215—INTRODUCTION TO WORLD LITERATURE: MEDIEVAL AND RENAISSANCE. 3 credits

Prerequisite: CEH 131-132-133. Second quarter of the course EH 214-215-216.

EH 216—INTRODUCTION TO WORLD LITERATURE: MODERN. 3 credits

Prerequisite: CEH 131-132-133. Third quarter of the course EH 214-215-216. From the seventeenth century to the twentieth.

EH 221—SURVEY OF ENGLISH LITERATURE. 4 credits

Prerequisite: CEH 131-132-133. Critical study of the major works of Chaucer, Spenser, Shakespeare, Donne, Milton, and Dryden.

EH 222—SURVEY OF ENGLISH LITERATURE. 4 credits

Prerequisite: CEH 131-132-133. Critical study of the major works of Pope, Swift, the Romantics, Tennyson, Browning.

EH 271—AMERICAN LITERATURE: MAJOR WRITERS (FRANKLIN THROUGH JAMES). 4 credits

Prerequisite: CEH 131-132-133. Critical study of the major authors from Franklin through James.

EH 272—AMERICAN LITERATURE: MAJOR WRITERS (DREISER THROUGH STEVENS). 4 credits

Prerequisite: CEH 131-132-133. Critical study of the major authors Dreiser through Stevens.

EH 301—ADVANCED EXPOSITION. 3 credits

Prerequisite: CEH 131-132-133. An advanced composition course in the methods of exposition: the writing of definition, classification, comparison and contrast, analysis, illustration, identification.

EH 302—BASIC TECHNICAL WRITING. 3 credits

Prerequisite: CEH 131-132-133. Effective presentation of technical and semi-technical information.

EH 303—BUSINESS COMMUNICATIONS. 4 credits

Prerequisite: CEH 131-132-133. Intensive instruction and practice on the organization, content, and style of business letters of all kinds.

EH 304—INTRODUCTION TO ENGLISH LINGUISTICS. 4 credits

Prerequisite: CEH 131-132-133. A survey of modern linguistics and the English language, its structure and development.

EH 305—MODERN ENGLISH STRUCTURE. 4 credits

Prerequisite: CEH 131-132-133. A study of the grammar of current English from the viewpoint of modern linguistics.

EH 310—BRITISH AND AMERICAN LITERATURE SINCE WORLD WAR II. 4 credits

Prerequisite: CEH 131-132-133. Poetry, fiction, and drama.

EH 311—MODERN DRAMA: EARLY. 3 credits

Prerequisite: CEH 131-132-133. A study of the drama from Ibsen through O'Neill. Representative selections from Continental, British, and American playwrights.

EH 312—MODERN DRAMA: LATER. 3 credits

Prerequisite: CEH 131-132-133. A study of the drama from Pirandello to the present.

EH 314—METAPHYSICS OF MODERN LITERATURE. 4 credits

Prerequisite: CEH 131-132-133. A critical reading of distinctive works of modern literature in the interest of discovering the world-view implied in their dramatic structure. Readings from novels, short stories, and plays.

EH 315—THE ENGLISH NOVEL: BEGINNINGS TO 1840. 4 credits

Prerequisite: CEH 131-132-133. Includes works by Defoe, Richardson, Fielding, Sterne, Smollett, Scott, and Austen.

EH 316—THE ENGLISH NOVEL: 1840 TO WORLD WAR I. 4 credits

Prerequisite: CEH 131-132-133. Includes works by Dickens, Thackeray, Trollope, Eliot, Meredith, Hardy, and Conrad.

EH 317—THE ENGLISH NOVEL: WORLD WAR I TO PRESENT. 4 credits

Prerequisite: CEH 131-132-133. Includes works by Lawrence, Joyce, Forster, Huxley, Woolf, Ford, Green, Waugh.

EH 329—IMAGINATIVE WRITING: POETRY. 3 credits

Prerequisite: CEH 131-132-133. Guidance in development of original work in poetry. Group discussion, individual conferences.

EH 330—IMAGINATIVE WRITING: FICTION. 3 credits

Prerequisite: CEH 131-132-133. Designed to help the student who desires guidance in developing his capacity for original work. Group discussion, individual conferences, many papers.

EH 341—THE BIBLE AS LITERATURE. 3 credits

Prerequisite: CEH 131-132-133. A literary analysis of selections from the Old and New Testaments, with emphasis upon the poetry and narrative elements.

EH 345—ETHNIC LITERATURE. 4 credits

Prerequisite: CEH 131-132-133. A study of selected literature representative of various ethnic groups, e. g., American Indian, Negro, Jewish, Spanish American.

EH 350—THE MOVIES AS NARRATIVE ART. 3 credits

Prerequisite: CEH 131-132-133. An examination of the movies as a mode of storytelling, with emphasis upon the difference between verbal and visual narration, and in relation to contemporary thought and values.

EH 371—AMERICAN FICTION: BEGINNINGS TO 1900. 4 credits

Prerequisite: CEH 131-132-133. Includes works by Cooper, Poe, Hawthorne, Melville, Twain, Howells, and James.

EH 372—AMERICAN FICTION: 1900 TO WORLD WAR II. 4 credits

Prerequisite: CEH 131-132-133. Includes works by Crane, Dreiser, Hemingway, Fitzgerald, Faulkner, and Steinbeck.

EH 381—THE THEORY AND PRACTICE OF MODERN CRITICISM. 3 credits

Prerequisite: CEH 131-132-133. An intensive study of the idea of art as it has evolved in 20th-century literary criticism and of the application of that idea to specific narrative, poetic, and dramatic texts.

EH 391—ARGUMENTATIVE WRITING. 3 credits

Prerequisites: CEH 131-132-133, EH 301, or consent of instructor. A course in advanced composition concerned with the writing of argument and critical analysis.

EH 401—HISTORY OF THE ENGLISH LANGUAGE. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253. The origins of the English language and its development from prehistoric times to the present.

EH 402—APPLIED LINGUISTICS. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253. The application of linguistics to the study of English; a comparison of modern approaches to the study of grammar. With a change in content, may be repeated for credit.

EH 403—REPORT WRITING. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253. For business, professional, and scientific students needing instruction and practice in the writing of reports; collecting, organizing, and interpreting facts, and writing up findings in report form and style.

EH 411—GREAT BOOKS OF THE WESTERN WORLD. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253. Many of the great classics which have germinated our culture and moulded modern thought are read, analyzed, and discussed. Concerned with the Classical, Medieval, and Renaissance writers.

EH 412—GREAT BOOKS OF THE WESTERN WORLD. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253. Second quarter of the course EH 411-412. Concerned with writers of the modern era.

EH 414—WORLD DRAMA. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253. A survey of world drama from its origins down to the rise of realism, from Aeschylus to Turgenev. Covers the Ancient and Medieval periods.

EH 415—WORLD DRAMA. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253. Second half of the course EH 414-415. Covers the Neoclassic and Romantic periods down to the pre-Ibsen realists.

EH 417—MODERN ENGLISH POETRY: ELIOT TO THE PRESENT. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253. Critical study of such major poets as Eliot, Auden, Thomas, McNeice, Spender, and Lewis.

EH 421—CHAUCER. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Reading and critical study of the *Canterbury Tales;* Chaucer's English and its place in the development of the language.

EH 423—MEDIEVAL ENGLISH LITERATURE. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. A survey of representative works of the Old and Middle English periods: *Beowulf, Gawain and the Green Knight, Piers Plowman,* and *Morte d'Arthur.*

EH 431—SHAKESPEARE: COMEDIES AND HISTORIES. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English or Speech. About ten plays selected from the major comedies and the tetralogy beginning with *Richard II.*

EH 432—SHAKESPEARE: MAJOR TRAGEDIES. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English or Speech. Four or five plays including *Hamlet* and *King Lear.*

EH 433—SPENSER. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Spenser's major poems. Works to be studied include the *Shepherdes Calender, The Faerie Queene, The Cantos of Mutabilitie,* and *Fowre Hymnes.*

EH 434—MILTON. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Milton's major poems. Works to be studied include *Comus, Lycidas, Paradise Lost, Paradise Regained,* and *Samson Agonistes.*

EH 436—RENAISSANCE LITERATURE: 16TH-CENTURY. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. A study of English poetry and prose, including fiction, from 1485 to 1600.

EH 437—RENAISSANCE LITERATURE: 17TH-CENTURY. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. A study of English poetry and prose, from 1600 to 1660.

EH 438—ELIZABETHAN DRAMA. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Survey of the major drama from the time of Marlowe to the closing of the theatres in 1642.

EH 441—THE AGE OF DRYDEN AND POPE. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, once course in English. Selections from the best works of such writers as Dryden, Congreve, Addison, Swift, and Pope.

EH 442—THE AGE OF JOHNSON. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. A study of the best works from Johnson, his circle, the novelists, and the lyric poets.

EH 443—RESTORATION AND EIGHTEENTH-CENTURY DRAMA. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Study of the English theater from 1660 to 1800, including such playwrights as Dryden, Etherege, Wycherley, Congreve, Otway, Rowe, Lillo, Goldsmith, Sheridan.

EH 451—THE ROMANTIC PERIOD: EARLY. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Selections from the best works of such writers as Burns, Blake, Wordsworth, Coleridge, Scott, and Lamb.

EH 452—THE ROMANTIC PERIOD: LATER. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Selections from the best works of such writers as Byron, Shelley, and Keats.

EH 461—VICTORIAN WRITERS I. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Selections from such writers as Carlyle, Tennyson, Browning, Mill, Newman.

EH 462—VICTORIAN WRITERS II. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Selections from such writers as Arnold, Ruskin, Rosetti, Hopkins, Hardy.

EH 471—AMERICAN POETRY: NINETEENTH-CENTURY. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Critical study of the major poets of the period.

EH 472—AMERICAN POETRY: TWENTIETH-CENTURY. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Second half of the course EH 471-472.

EH 473—SURVEY OF AMERICAN LITERATURE: FROM THE BEGINNINGS THROUGH WHITMAN. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Intellectual backgrounds of the literature, minor figures, trends and movements, as well as major figures in depth.

EH 474—SURVEY OF AMERICAN LITERATURE: TWAIN TO WORLD WAR II. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Second part of the course EH 473-474.

EH 481—INTRODUCTION TO FOLKLORE. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253. Reading, discussion, and critical study of the types of folklore with emphasis on folksong. Some attention to utilization by teachers and creative artists.

EH 482—THE FOLKTALE. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253. Reading folktales, a study of their types and characteristics, some attention to critical and scholarly study, and utilization of folktales by teachers and creative artists.

EH 485—HONORS SEMINAR. 5 credits
Prerequisite: Permission of a depatmental adviser. Open to selected English majors. Intensive study by the seminar method of a limited topic in English or American literature. May be repeated for credit.

EH 491—CHILDREN'S LITERATURE. 4 credits
Prerequisites: CEH 131-132-133, CHN 251-252-253. Designed to arouse a genuine interest in children's books and to aid the student in obtaining a critical knowledge of the literature.

EH 492—LITERATURE FOR THE ADOLESCENT. 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. A study of the types of literature read by adolescents, with emphasis upon the criteria for the choice of good books and upon developing a familiarity with the many books available.

EH 494—ENGLISH IN THE SECONDARY SCHOOL. (Identical with EDS 494). 4 credits

Prerequisites: CEH 131-132-133, CHN 251-252-253, one course in English. Designed to help prepare teachers by a study of the content, materials, methods, and objectives of the secondary English program.

EH 499—SPECIAL STUDIES. 4 credits

Prerequisite: Permission of the instructor. Proseminar of variable content, providing an opportunity for the study in depth of various topics or subjects. For advanced students. May be repeated with change of content.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

EH 530—INDIVIDUAL WORK IN CREATIVE WRITING. 4 credits*

Prerequisites: EH 330 or equivalent, consent of instructor, and approval of department head. Individual projects in creative composition for qualified students interested in the writing of fiction or poetry as art forms.

EH 599—INDIVIDUAL WORK. 1 to 5 credits*

Prerequisite: Permission of the instructor and of the department head. For advanced students who desire to supplement the regular courses by individual reading or research under guidance. May be repeated with change of topic.

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*Available for graduate major credit.

GRADUATE COURSES

EH 601—THE ENGLISH LANGUAGE TO 1400. 4 credits

EH 602—THE ENGLISH LANGUAGE SINCE 1400. 4 credits

EH 603—OLD ENGLISH: LANGUAGE. 4 credits

EH 604—MIDDLE ENGLISH: LANGUAGE. 4 credits

EH 605—DESCRIPTIVE LINGUISTICS: PHONEMICS. 4 credits

EH 606—DESCRIPTIVE LINGUISTICS: MORPHEMICS AND SYNTAX. 4 credits

EH 610—THE LITERATURE OF IRELAND. 4 credits

EH 611—20TH-CENTURY ENGLISH LITERATURE. 4 credits

EH 612—BRITISH AND AMERICAN DRAMA OF THE 20TH CENTURY. 4 credits

EH 621—OLD ENGLISH: LITERATURE. 4 credits

EH 622—BEOWULF. 4 credits

EH 623—MIDDLE ENGLISH: LITERATURE. 4 credits

EH 624—CHAUCER: TROILUS AND CRISEYDE. 4 credits

EH 625—CHAUCER: THE CANTERBURY TALES. 4 credits

EH 631—THE RENAISSANCE IN ENGLAND: THE TUDOR PERIOD. 4 credits

EH 632—THE RENAISSANCE IN ENGLAND: THE LATER RENAISSANCE. 4 credits

EH 634—MILTON. 4 credits

EH 635—SPENSER. 4 credits

EH 636—PRE-SHAKESPEAREAN DRAMA: BEGINNINGS THROUGH MARLOWE. 4 credits

EH 637—LATE RENAISSANCE DRAMA: FROM MARLOWE TO THE CLOSING OF THE THEATRES. 4 credits

EH 638—SHAKESPEARE: THE EARLY PLAYS. 4 credits

EH 639—SHAKESPEARE: THE LATER PLAYS. 4 credits

EH 641—THE AGE OF DRYDEN AND POPE. 4 credits

EH 642—THE AGE OF JOHNSON. 4 credits

EH 644—RESTORATION DRAMA. 4 credits

EH 645—18TH-CENTURY DRAMA. 4 credits

EH 651—ROMANTICISM: BURNS, BLAKE, COLERIDGE, WORDSWORTH, SOUTHEY. 4 credits

EH 652—ROMANTICISM: BYRON, SHELLEY, KEATS, HUNT, SCOTT. 4 credits

EH 661—THE VICTORIAN PERIOD: POETRY. 4 credits

EH 662—THE VICTORIAN PERIOD: NON-FICTIONAL PROSE. 4 credits

EH 671—AMERICAN LITERATURE: COLONIAL AND EARLY NATIONAL. 4 credits

EH 672—AMERICAN LITERATURE: HAWTHORNE THROUGH WHITMAN. 4 credits

EH 673—AMERICAN LITERATURE: TWAIN THROUGH DREISER. 4 credits

EH 674—AMERICAN LITERATURE: SINCE WORLD WAR I. 4 credits

EH 680—THE ENGLISH NOVEL: DEFOE TO SCOTT. 4 credits

EH 681—THE ENGLISH NOVEL: AUSTEN TO CONRAD. 4 credits

EH 682—LITERARY CRITICISM: CLASSICAL THROUGH RENAISSANCE. 4 credits

EH 683—LITERARY CRITICISM: 18TH CENTURY TO PRESENT. 4 credits

EH 684—PROSODY. 4 credits

EH 685—BIBLIOGRAPHY AND METHODS OF RESEARCH. 4 credits

EH 686—INDIVIDUAL WORK.* 4 credits

EH 697—SUPERVISED RESEARCH. 1 to 5 credits

EH 698—SUPERVISED TEACHING. 1 to 5 credits

EH 699—MASTER'S RESEARCH. 1 to 15 credits

EH 701—SEMINAR IN LINGUISTICS.* 4 credits

EH 711—SEMINAR IN 20TH-CENTURY ENGLISH LITERATURE.* 4 credits

EH 712—SEMINAR IN CONTEMPORARY ENGLISH AND AMERICAN LITERATURE: VARIABLE TOPICS.* 4 credits

EH 721—SEMINAR IN MEDIEVAL LITERATURE.* 4 credits

EH 731—SEMINAR IN SHAKESPEARE.* 4 credits

EH 732—SEMINAR IN RENAISSANCE LITERATURE.* 4 credits

EH 741—SEMINAR IN RESTORATION AND EARLY 18TH-CENTURY LITERATURE.* 4 credits

EH 742—SEMINAR IN LATE 18TH-CENTURY LITERATURE.* 4 credits

EH 751—SEMINAR IN ROMANTICISM.* 4 credits

EH 761—SEMINAR IN VICTORIAN LITERATURE.* 4 credits

EH 771—SEMINAR IN 19TH-CENTURY AMERICAN LITERATURE.* 4 credits

EH 772—SEMINAR IN 20TH-CENTURY AMERICAN LITERATURE.* 4 credits

EH 773—SEMINAR IN AMERICAN LITERATURE: VARIABLE TOPICS.* 4 credits

EH 781—SEMINAR IN ENGLISH DRAMA.* 4 credits

EH 799—DOCTORAL RESEARCH. 1 to 15 credits

* May be repeated with change of content up to a maximum of 12 credits.

Geography

INSTRUCTIONAL STAFF 1969-70

McCune, S., *Chairman;* Anderson, J. R.; Crist, R. E.; Cross, C. I.; Dickinson, J. C. III; Dunkle, J. R.; Lewis, P. W.; Marcus, R. B.; Mather, C. E.; Niddrie, D. L.; Paganini, L. A.

An undergraduate major in geography consists of a minimum of 36 quarter hours including GPY 200 or 201; 300; two of the following three: 321, 331, or 341; 481; 501; and 505. At least three of the following courses are recommended as electives: APY 200, EH 302, ES 201, GY 201 and 211, STA 320.

GPY 100—GEOGRAPHY FOR A CHANGING WORLD. 4 credits

Geography for freshmen and sophomore students who have had only a limited or no opportunity to study geography in secondary schools.

GPY 200—GEOGRAPHY OF WORLD ECONOMIES. 4 credits

A general geographic survey of the major economies of the modern world with an emphasis on the spatial analysis of economic activities.

GPY 201—GEOGRAPHY OF WORLD SOCIETIES. 4 credits

An introduction to cultural geography with an emphasis upon the development and spatial arrangement of the major societies of the modern world.

GPY 300—PHYSICAL GEOGRAPHY 5 credits

A study of the development and distribution of landforms, climates, minerals, soils, and water resources. Interrelationships among the elements of the physical environment and regional patterns formed by these elements are analyzed against the background of man's utilization of them. Available for laboratory science credit.

GPY 305—GEOGRAPHY OF FLORIDA. 4 credits

The geographic conditions and human adjustments in the major regions of Florida. The natural environment, population, routes of communication, industries, resources, and strategic location in their geographical and historical aspects. Optional field trips.

GPY 321—ECONOMIC GEOGRAPHY. 4 credits

Prerequisite: CSS 111-112 or equivalent. A comparative geographical survey of major economic activities such as agriculture, forestry, fishing, mining, manufacturing, and commerce. Emphasis will be upon the study of the characteristics of distribution and the regional patterns of these activities.

GPY 331 (identical with ES 331)—CONSERVATION OF RESOURCES. 4 credits

Prerequisite: GPY 200 or 201 or permission. A survey of natural and human resources followed by a study of wise and wasteful practices of utilization of these resources. Course will satisfy resource certification for social studies teachers.

GPY 341—POLITICAL GEOGRAPHY. 4 credits

Prerequisite: CSS 111-112 or equivalent. A survey of the impact of geographical influences upon the establishment and functioning of sovereign states and dependent areas in order to give a background for the intelligent comprehension of current events.

GPY 351—POPULATION GEOGRAPHY. 4 credits

World-wide distribution of population; the areal distribution of populations in relation to the features of the environment in selected areas; problems of adjustment; population-supporting capacity.

GPY 430—INDIVIDUAL WORK. 1 to 5 credits

For undergraduates only. Prerequisite: 12 hours of geography and consent of the instructor. Qualified students and the instructor concerned may choose a particular topic or problem for study. GPY 430 may be repeated for full credit with change of content.

GPY 438—WORKSHOP IN RESOURCE UTILIZATION. 5 credits

Prerequisite: ES 331 or GPY 331. A study of the problems or local resources and their use in a designated unit area such as a city or county. Course consists of classwork and fieldwork.

GPY 481—GEOGRAPHY OF THE UNITED STATES AND CANADA. 4 credits

Prerequisite: CSS 111-112 or equivalent and 6 additional hours of social sciences. A comprehensive and systematic survey of the population, natural resources, geographic regions, and potentialities of the United States and Canada; the significance of these countries in the economic and political affairs of the world.

GPY 484—ENVIRONMENT AND SOCIETY OF LATIN AMERICA. 3 credits

Prerequisite: CSS 111-112 or equivalent and 6 additional hours of social sciences. A survey of the physical environment and of society in Latin America, followed by an analysis of the interaction between different resource bases and different peoples.

GPY 485—GEOGRAPHY OF MIDDLE AMERICA AND THE CARIBBEAN. 3 credits

Prerequisites: CSS 111-112 or equivalent and 6 additional hours of social sciences. A comprehensive and systematic survey of the population, natural resources, geographic regions, and potentialities of Middle America and the Caribbean; the significance of this region in the economic and political affairs of the world.

GPY 486—GEOGRAPHY OF SOUTH AMERICA. 3 credits

Prerequisites: CSS 111-112 or equivalent and 6 additional hours of social sciences. A comprehensive and systematic survey of the population, natural resources, geographic regions, and potentialities of South America; the significance of this region in the economic and political affairs of the world.

GPY 490—GEOGRAPHY OF EUROPE. 3 credits

Prerequisites: CSS 111-112 or equivalent and 6 additional hours of social sciences. A comprehensive and systematic survey of the population, natural resources, geographic regions and potentialities of Europe; the significance of this region in the economic and political affairs of the world.

GPY 491—GEOGRAPHY OF THE U.S.S.R. 4 credits

Prerequisites: CSS 111-112 or equivalent and 6 additional hours of social sciences. A comprehensive and systematic survey of the population, natural resources, geographic regions, and potentialities of the U.S.S.R.; the significance of the U.S.S.R. in the economic and political affairs of the world.

GPY 493—GEOGRAPHY OF THE NEAR EAST. 3 credits

Prerequisites: CSS 111-112 or equivalent and 6 additional hours of social sciences. A comprehensive and systematic survey of the population, natural resources, geographic regions, and potentialities of the Near East; the significance of this region in the economic and political affairs of the world.

GPY 494—GEOGRAPHY OF THE FAR EAST. 4 credits

Prerequisites: CSS 111-112 or equivalent and 6 additional hours of social sciences. A comprehensive and systematic survey of the population, natural resources, geographic regions, and potentialities of the Far East, the significance of this region in the economic and political affairs of the world.

GPY 496—GEOGRAPHY OF AFRICA. 4 credits

Prerequisites: CSS 111-112 or equivalent and 6 additional hours of social sciences. A comprehensive and systematic survey of the population, natural resources, geographic regions, and potentialities of Africa; the significance of this region in the economic and political affairs of the world.

GPY 497—GEOGRAPHY OF SOUTHERN AFRICA. 4 credits

Prerequisite: GPY 496; recommended APY 443. An intensive study of the landscape, natural resources, population, historical geography and industrial development of Southern Africa.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

GPY 501—AIR PHOTO INTERPRETATION. 5 credits*

Prerequisites: GPY 300, GPY 321, or permission. Principles of aerial photography; identification and interpretation of physical and cultural features; sketching and simple map-making and uses of aerial photography.

GPY 505—MAPS AND GRAPHS. 5 credits*

Prerequisite: GPY 200 or 201 or permission. Analyses of cartographic problems with exercises in techniques of presentation. Map projections and symbols. Problems in statistical representation by graphic methods.

GPY 526—URBAN GEOGRAPHY. 3 credits*

An empirical and theoretical spatial analysis of the various economic, population, and social facets within and between urban settlements; urbanism in developing countries; regional development and planning.

GPY 535—LAND TENURE. 3 credits*

Prerequisites: CSS 111-112 or equivalent and 12 additional hours of social sciences. A world-wide study of systems of land tenure, with special attention to the geographic factors underlying their development. The effects of the various systems of land tenure upon land utilization and productivity.

*Available for graduate major credit.

GRADUATE COURSES

GPY 600—HISTORY OF GEOGRAPHIC THOUGHT 1. 3 credits
GPY 601—HISTORY OF GEOGRAPHIC THOUGHT 2. 3 credits
GPY 605—FIELD COURSE IN GEOGRAPHY. 5 credits
GPY 606—INDIVIDUAL FIELD WORK. 3 credits
GPY 608—QUANTITATIVE ANALYSIS IN GEOGRAPHY. 5 credits
GPY 615—CULTURAL PLANT GEOGRAPHY IN THE TROPICS. 3 credits
GPY 621—PROBLEMS IN ECONOMIC GEOGRAPHY. 3 credits
GPY 623—GEOGRAPHY OF WORLD AGRICULTURE. 5 credits
GPY 625—GEOGRAPHY OF UNDERDEVELOPED LANDS. 3 credits
GPY 630 INDIVIDUAL WORK. 1 to 5 credits. Maximum 15 credits
GPY 635—LAND AND WATER UTILIZATION. 5 credits
GPY 660—GEOGRAPHY OF RURAL SETTLEMENT. 5 credits
GPY 661—PROBLEMS IN CULTURAL GEOGRAPHY. 5 credits
GPY 681—SEMINAR: UNITED STATES & CANADA. 3 credits
GPY 685—SEMINAR: MIDDLE AMERICA AND THE CARIBBEAN. 5 credits
GPY 686—SEMINAR: SOUTH AMERICA. 5 credits
GPY 687—SEMINAR: BRAZIL. 5 credits
GPY 688—RESOURCE UTILIZATION AND CONSERVATION IN LATIN AMERICA. 3 credits
GPY 689—SEMINAR: LAND, MAN, AND MIGRATION IN LATIN AMERICA. 3 credits
GPY 690—TROPICAL LANDS AND THEIR UTILIZATION. 9 credits
GPY 695—SELECTED TOPICS IN GEOGRAPHY. 1 to 6 credits
GPY 697—SUPERVISED RESEARCH. 1 to 5 credits
GPY 698—SUPERVISED TEACHING. 1 to 5 credits
GPY 699—MASTER'S RESEARCH. 1 to 15 credits
GPY 799—DOCTORAL RESEARCH. 1 to 15 credits

Geology

INSTRUCTIONAL STAFF 1969-70

Wahl, F. M., *Chairman;* Blanchard, F. N.; Brooks, H. K.; Edwards, R. A.; Mifflin, M. D.; Nicol, D.; Pierce, R. W., Jr.; Pirkle, E. C., Jr.; Randazzo, A. F.; Rappenecker, C.; Sutherland, B.; Webb, S. D.

To meet the minimum requirements for a major in geology it is recommended that the student obtain credit in the following core courses or their equivalent: GY 201-202, GY 407-408-409, GY 418, GY 421, and GY 427. Credit for GY 440 or a summer field course in geology is also recommended. In addition the student must obtain credit for one advanced geology course. Those students who intend to do graduate work in geology should take additional courses at the 500 level.

Majors in geology should also takes courses in mathematics, chemistry, and physics. Specific course recommendations will depend upon the area of primary geologic interest. Students considering an undergraduate major in geology are urged to contact the departmental office (Room 211 Floyd) as early as possible for program counseling.

GY 109—ELEMENTS OF GEOLOGY. 3 credits

Selected topics in physical and historical geology. Designed for the student not majoring in science. May not be counted for credit toward a minimum major in Geology.

GY 201—PHYSICAL GEOLOGY. 4 credits

Materials, structures, surface features of the earth and processes which have produced them. Related laboratory demonstrations and exercises.

GY 202—HISTORICAL GEOLOGY. 4 credits

Prerequisite: GY 201 or consent of instructor. Evolution of the earth and its life. The major physical events and evolutionary changes as recorded in the geologic past. Related laboratory demonstrations and exercises.

†GY 220—ENGINEERING GEOLOGY. 4 credits

The several fields of geology significant in the location of engineering structures and installations; the identification of common minerals and rocks; the processes and weathering and erosion; structure; surface features and geologic history interpreted from topographic and geologic maps. For Civil Engineers.

†GY 370—EARTH SCIENCE FOR TEACHERS 1. 4 credits

The major elements of the atmosphere, the hydrosphere, the lithosphere, the solar system and of earth origin. Analysis of interrelations between atmospheric circulation and ocean circulation and between atmospheric conditions and processes of earth gradation.

†GY 371—EARTH SCIENCE FOR TEACHERS 2. 4 credits

The second third of the sequence GY 370, 371 and 372.

†GY 372—EARTH SCIENCE FOR TEACHERS 3. 4 credits

The final third of the sequence GY 370, 371 and 372.

†GY 392—ROCKS AND MINERALS FOR TEACHERS. 4 credits

An integrated development of crystallography, mineralogy and petrology using the rock-forming and economically significant minerals to illustrate principles of mineralogy. This course will emphasize identification of the common minerals and rocks to provide secondary school teachers with an adequate background to introduce students to elementary mineralogy.

†GY 400—FLORIDA GEOLOGY FOR TEACHERS. 4 credits

Principles of physical and historical geology as applied to the geology and mineral resources of Florida.

GY 407—CRYSTALLOGRAPHY. 4 credits

Prerequisite: GY 201 or CY 201. Introduction to structural and morphological crystallography, crystal chemistry including the physical and chemical properties of minerals.

GY 408—MINERALOGY. 4 credits

Prerequisite: GY 407. Origin and identification of rock-forming minerals.

GY 409—STRUCTURAL GEOLOGY. 4 credits

Prerequisite: GY 202 or consent of instructor. Structural features of the earth, their causes, recognition and interpretation, to include the mechanics of folding, faulting, and other deformations of the earth's crust.

GY 418—ELEMENTARY PETROLOGY. 4 credits

Prerequisite: GY 408. Review of the rock-forming minerals followed by detailed consideration of the origin, occurrence, alteration, and classification of the igneous, sedimentary and metamorphic rocks. Introduction to the use of the petrographic microscope and to the preparation of thin sections.

GY 421—INVERTEBRATE PALEONTOLOGY. 4 credits

Prerequisites: CBS 261-262. Characteristics and identification of important groups of invertebrate fossils and their use in the determination of the geological age of sedimentary rocks.

GY 427—PRINCIPLES OF STRATIGRAPHY. 4 credits

Prerequisite: GY 202. The principles used in stratigraphic correlation.

GY 430—INDIVIDUAL WORK. 4 credits

Prerequisite: 15 hours of Geology and permission of Chairman of Department. For work in addition to that offered in regular courses in physiography, mineralogy, petrology, paleontology, stratigraphy, sedimentology, and structural geology. With changes in content GY 430 may be elected for additional credit.

GY 440—GEOLOGICAL FIELD METHODS. 4 credits

Prerequisites: 15 hours of geology courses. Techniques used in geological field work.

†GY 465—PREPARATION TO TEACH THE EARTH SCIENCE CURRICULUM PROJECT EARTH SCIENCE COURSE. 4 credits

Prerequisites: (9) quarter hours in earth science courses or the equivalent thereof. Lectures, demonstrations and laboratory exercises designed to prepare secondary school teachers to use the methods and materials developed by the Earth Science curriculum Project committee. May be repeated for 4 additional credits.

GY 470—INRODUCTORY PHYSICAL OCEANOGRAPHY. 4 credits

History of oceanography; distribution of Earth's land and water; nature and relief of the seas floor; physical and chemical properties of sea water; sea ice; sound in the sea; tides, currents, and waves; marine sedimentation.

Courses marked (†) do not give credit toward a major in Geology, except by special permission of the Chairman of the Department.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

GY 501—GEOMORPHOLOGY. 4 credits*

Prerequisite: GY 202 or equivalent. Principles of geomorphology. A study of the basic concepts of the development of land forms, particularly with respect to the interrelations of rock structure, the processes operating and stage attained.

GY 507—VERTEBRATE PALEONTOLOGY. 4 credits*

Identical with ZY 507. Prerequisite: ZY 309 or GY 304. Evolutionary history of major vertebrate groups with emphasis on principles of prehistoric investigation.

GY 508—GEOCHEMISTRY 4 credits*

Prerequisites: GY 202 and CY 213. The abundance and terrestrial distribution of the major chemical elements and their behavior during various geologic processes.

GY 511—ECONOMIC GEOLOGY 1. 4 credits*

Prerequisite: GY 408 and GY 409. The geology of metalliferous deposits, with emphasis on origin and occurrence.

GY 512—ECONOMIC GEOLOGY 2. 4 credits*

A study of non-metallic geologic resources.

GY 517—MARINE GEOLOGY. 4 credits*

Prerequisite: GY 304 or permission of the instructor. Principles and methods of submarine geology with special reference to the submerged margins of the continents.

GY 518—OPTICAL CRYSTALLOGRAPHY. 4 credits*

Prerequisite: GY 407 or permission of the instructor. The theory and use of the petrographic microscope in the recognition and identification of the crystallographic and optical properties of non-opaque crystalline substances in ordinary and polarized light.

GY 550—GROUND WATER GEOLOGY. 4 credits*

Principles of ground water geology with special reference to the Coastal Plain and Florida.

* Available for graduate major credit.

GY 561—SEDIMENTARY PETROLOGY. 4 credits*

Prerequisite: GY 418. The origin, composition, and structures of sedimentary rocks including tectonic, paleogeographic and environmental interpretation.

GY 580—DEVELOPMENT OF THE GEOLOGICAL SCIENCES. 3 credits*

The historical development of the geosciences.

* Available for graduate major credit.

GRADUATE COURSES

GY 600—TECTONICS. 4 credits
GY 601—GEOMORPHOLOGY OF SOUTHEASTERN UNITED STATES. 4 credits
GY 607—ANCIENT VERTEBRATE FAUNAS. 4 credits
GY 611—MINERALOGY OF CLAYS. 4 credits
GY 618—PETROGRAPHIC MINERALOGY. 4 credits
GY 619—SEDIMENTARY PETROGRAPHY. 4 credits
GY 623—MICROPALEONTOLOGY. 4 credits
GY 624—PALEOECOLOGY. 4 credits
GY 625—ADVANCED INVERTEBRATE PALEONTOLOGY. 4 credits
GY 630—INDIVIDUAL WORK. 1 to 5 credits. Maximum 15 credits
GY 640—CENOZOIC AND MESOZOIC STRATIGRAPHY. 4 credits
GY 651—HYDROGEOLOGY. 4 credits
GY 660—SEMINAR. 1 credit. Maximum 3 credits
GY 690—SPECIAL TOPICS IN GEOLOGY. 4 credits. Maximum 12 credits
GY 697—SUPERVISED RESEARCH. 1 to 5 credits
GY 698—SUPERVISED TEACHING. 1 to 5 credits
GY 699—MASTER'S RESEARCH. 1 to 15 credits

Germanic and Slavic Languages and Literatures

INSTRUCTIONAL STAFF 1969-70

Krispyn, Egbert, *Chairman;* Craps, J. E.; Frakes, J. M.; Johnston, O. W.; Jones, O. F.; Mauderli, M. O.; O'Donnell, J.; Rapp, G.; Tunstall, G. C.; Valk, M. E.

An undergraduate major is offered in German and Russian. The major consists of 39 quarter hours above the second-year college level, which for German students must include GN 555. Students interested in majoring in German or Russian should consult a departmental adviser at the earliest opportunity.

Students who have had previous formal training in German or Russian at another institution are required to take a placement test before registering.

German

GN 133—FIRST-YEAR GERMAN. 5 credits

GN 134—FIRST-YEAR GERMAN. 5 credits

Prerequisite: GN 133 (grade of C or better), or the equivalent.

GN 201—SECOND-YEAR GERMAN. 4 credits

Prerequisite: GN 134 (grade of C or better), or the equivalent.

GN 202—SECOND-YEAR GERMAN. 4 credits

Prerequisite: GN 201, or the equivalent.

GN 250—INTRODUCTION TO MODERN GERMAN LITERATURE IN TRANSLATION. 4 credits

No Prerequisites. Not for major credit.

GN 304—ORAL PRACTICE IN GERMAN. 4 credits
Prerequisite: GN 202, or the equivalent.

GN 305—GRAMMAR AND COMPOSITION 4 credits
Prerequisite: GN 202, or the equivalent.

GN 327—INTRODUCTION TO GERMAN LITERATURE 1. 5 credits
Prerequisite: GN 202, or the equivalent. Study of representative texts from the Old High German period to the Storm and Stress movement.

GN 328—INTRODUCTION TO GERMAN LITERATURE 2. 5 credits
Prerequisite: GN 202, or the equivalent. Study of representative texts from the Classical Period to the present time.

GN 330—GERMAN CIVILIZATION. 4 credits
Prerequisite: GN 202. Introduction to German culture, with emphasis on the development of the Humanities.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

GN 505—INDIVIDUAL WORK. 1 to 4 credits
Available only by special arrangement. May be repeated with change of content up to a maximum of 16 credits.

GN 506—ADVANCED GRAMMAR AND COMPOSITION. 4 credits*
Prerequisite: GN 305 or the equivalent.

GN 512—HISTORY OF THE GERMAN LANGUAGE. 4 credits*
Prerequisites: GN 304-305 and GN 327-328, or the equivalent.

GN 513—GERMAN LYRIC POETRY. 4 credits*
Prerequisites: GN 304-305 and GN 327-328, or the equivalent.

GN 528—AUFKLÄRUNG AND STURM UND DRANG. 4 credits*
Prerequisites: GN 304-305 and GN 327-328, or the equivalent.

GN 529—THE GERMAN CLASSICAL PERIOD. 4 credits*
Prerequisites: GN 304-305 and GN 327-328, or the equivalent.

GN 530—THE ROMANTIC PERIOD AND "JUNGES DEUTSCHLAND." 4 credits*
Prerequisites: GN 304-305 and GN 327-328, or the equivalent.

GN 540—GERMAN DRAMA. 4 credits*
Prerequisites: GN 304-305 and GN 327-328, or the equivalent.

GN 545—REALISM AND NATURALISM. 4 credits*
Prerequisites: GN 304-305 and GN 327-328, or the equivalent.

GN 550—PHILOSOPHICAL BACKGROUND OF GERMAN LITERATURE. 4 credits*
Prerequisite: Permission of the Professor in charge. Conducted in German. Trends and landmarks in German philosophy as related to German literature.

GN 555—MIDDLE HIGH GERMAN. 3 credits*
Prerequisite: Departmental approval.

GN 560—20TH-CENTURY GERMAN LITERATURE. 4 credits*
Prerequisites: GN 304-305 and GN 327-328, or the equivalent.

*Available for graduate major credit.

GRADUATE COURSES

GN 600—SPECIAL STUDY IN GERMAN LITERATURE. 4 credits
Maximum 16 credits
GN 602—BEGINNING GERMAN FOR GRADUATE STUDENTS 1. 4 credits
GN 603—BEGINNING GERMAN FOR GRADUATE STUDENTS 2. 4 credits
GN 604—GOETHE. 4 credits
GN 605—INDIVIDUAL WORK. 1 to 4 credits. Maximum 16 credits
GN 620—GOTHIC. 4 credits
GN 624—INTRODUCTION TO OLD ICELANDIC. 3 credits
GN 625—READINGS IN OLD ICELANDIC. 3 credits
GN 650—SEMINAR IN GERMANIC STUDIES. 4 credits
GN 651—MIDDLE HIGH GERMAN LITERATURE. 3 credits
GN 652—GERMAN LITERATURE OF THE BAROQUE. 4 credits
GN 653—GERMAN LITERATURE SINCE 1945. 4 credits
GN 697—SUPERVISED RESEARCH. 1 to 5 credits
GN 698—SUPERVISED TEACHING. 1 to 5 credits
GN 699—MASTER'S RESEARCH. 1 to 15 credits

Russian

RSN 102—THE RUSSIAN NOVEL IN THE NINETEENTH CENTURY. 3 credits
Representative works of Pushkin, Gogol, Goncharov, Turgenev, Tolstoy, Dostoevsky. No knowledge of Russian required. Students who have studied Russian are, however, required to do substantial reading in Russian.

RSN 103—MASTERPIECES OF RUSSIAN DRAMA THROUGH GORKY. 3 credits
No prerequisite, except, in the case of students of Russian, permission of the department head. Lectures, readings, and reports. Knowledge of Russian not necessary. Students of Russian are, however, required to do substantial reading in Russian.

RSN 133—FIRST-YEAR RUSSIAN. 5 credits

RSN 134—FIRST-YEAR RUSSIAN. 5 credits
Prerequisite: RSN 133 (grade of C or better), or the equivalent.

RSN 201—SECOND YEAR RUSSIAN. 4 credits
Prerequisite: RSN 134 (grade of C or better), or the equivalent.

RSN 202—SECOND-YEAR RUSSIAN. 4 credits
Prerequisite: RSN 201, or the equivalent.

RSN 530—INDIVIDUAL WORK. 4 credits
Prerequisite: RSN 202, or the equivalent, and permission of the Professor in charge. With change of content, may be repeated for additional credit.

History

INSTRUCTIONAL STAFF 1969-70

Mahon, J. K., *Chairman;* Armayor, O. K.; Bieber, J. B.; Bentley, G. R.; Burns, A. M. III; Bushnell, D.; Chalmers, D. M.; Chang, R. T.; Conroy, S. S.; Cox, M. G.; Creel, A. B.; Davis, R. H., Jr.; Doherty, H. J.; Entner, M. L.; Funk, A. L.; Gannon, M. V.; Goslinga, C. C.; Hammond, E. A.; Hanna, P. L.; Henry, G. S.; Hoffman, G. J.; Jones, B. C.; Kele, M. H.; McAlister, L. N.; Macaulay, N. W., Jr.; Mugar, J. H.; Paul, H. W.; Payne, A. N.; Peek, R. L.; Proctor, S.; Slaughter, J. E.; Sturgill, C. C.; Suarez, A.; Tjarks, G. O. E.; Toner, R. J.; Trueblood, F.; Turner, E. R.; Wilensky, N. M.; Wilson, H. A.; Winius, G. D.; Woodruff, W.

A major consists of a minimum of 40 hours of history. Although no invariable sequence is prescribed, majors are expected to take HY 245-246, HY 201-202 or an equivalent sequence in European history, at least two courses outside the areas of European and United States history, and at least two courses at the 500 level. Transfer students must take at least 20 hours of history at the University of Florida to complete a major in the Department. Prospective majors should consult one of the departmental advisers as early as possible. Candidates for Honors and High Honors are required to take HY 500, either HY 591, 592 or 593, and HY 597, and to have a 3.2 grade-point average.

HY 201—EUROPEAN CIVILIZATION FROM THE MIDDLE AGES TO 1815. 4 credits

A survey, beginning with a review of medieval institutions, emphasizing political, economic, social and cultural developments to the end of the Napoleonic era.

HY 202—EUROPEAN CIVILIZATION SINCE 1815. 4 credits

A continuation of HY 201, covering the period from the Congress of Vienna to the present.

HY 245—UNITED STATES TO 1877. 5 credits

A survey of the development of the U.S. from its colonial origins to the end of Reconstruction.

HY 246—UNITED STATES SINCE 1877. 5 credits

A survey of the emergence of modern America as an industrial and world power; the Progressive era; WWI; great depression and New Deal; WWII; and the cold war era.

HY 252—FLORIDA TO 1860. 3 credits

The Spanish heritage, the British period, acquisition by the U.S., territorial experience, and statehood.

HY 253—FLORIDA SINCE 1860. 3 credits

Civil War and Reconstruction; the Bourbons; the Progressive era; modern Florida with emphasis on agriculture, tourism, urbanization, and industrialization.

HY 307—ANCIENT CIVILIZATIONS TO 500 B.C. 3 credits

HY 308—ANCIENT CIVILIZATIONS, 500 B.C. TO 323 B.C. 3 credits

Emphasis is on Classical Greece.

HY 309—ANCIENT CIVILIZATIONS, 323 B.C TO A.D. 530. 3 credits

Emphasis is on the Hellenistic world and the Roman Empire.

HY 313—EARLY MIDDLE AGES. 4 credits

The evolution of the western world, to the "great revolution" of the 11th century.

HY 314—LATER MIDDLE AGES. 4 credits

The apogee and decline of medieval civilization.

HY 318—RENAISSANCE. 4 credits

Interpretations of the Renaissance. Italy: culture and politics. The northern Renaissance and Christian Humanism.

HY 319—REFORMATION. 4 credits

Medieval background. The Protestant, Radical, and Catholic Reformations of the 16th century. Impact on European society.

HY 325—EUROPE, 1763 TO 1848. 4 credits

HY 326—EUROPE, 1848 TO 1914. 4 credits

HY 327—EUROPE SINCE 1914. 4 credits

HY 330—RUSSIA TO 1801. 4 credits

HY 331—RUSSIA, 1801 TO 1917. 4 credits

HY 332—SOVIET UNION. 4 credits

HY 335—ENGLAND TO 1688. 4 credits

HY 336—ENGLAND SINCE 1688. 4 credits

HY 343—AFRICA TO 1800. 4 credits
Ancient Africa, the expansion of Islam, savannah kingdoms, East African trading cities, maritime contacts with Europe, the slave trade.

HY 344—AFRICA SINCE 1800. 4 credits
The end of the slave trade and the growth of "legitimate" commerce; Islamic renewal and revolution; the European partition and the colonial era; the growth of nationalism and the re-emergence of independent Africa.

HY 348—JACKSONIAN AMERICA. 4 credits
The main trends in political, economic and social history in the United States from the close of the War of 1812 through the compromise of 1850, with major emphasis on political history.

HY 349—SLAVERY AND CIVIL WAR IN THE U.S. 4 credits
Prerequisite: HY 245. Biracial settlement of the South, a minority within a minority; north of slavery, abolitionist crusade, sectional controversy, the War, and why the North won.

HY 350—RECONSTRUCTION AND RACE RELATIONS SINCE 1865. 4 credits
Reconstruction and the Freedman; from slavery to freedom; the myth of black reconstruction; institutional and constitutional problems; the legend and reality of "radical" Republican policy towards the Negro; the Grant era. The Second Reconstruction: black protest and the nation's response. Beyond the Civil Rights Revolution.

HY 370—CURRENT LATIN AMERICAN EVENTS. 3 credits
Prerequisite: ability to understand Spanish. Conducted in Spanish. Events as reported in contemporary Spanish-language sources. Offered in cooperation with the Foreign Language Department.

HY 371—COLONIAL LATIN AMERICAN HISTORY. 4 credits
A survey of Indian civilizations, European discovery and conquest, colonial institutions, and the independence movement.

HY 372—MODERN LATIN AMERICAN HISTORY. 4 credits
A survey of the Latin American nations since 1825 with emphasis on political, economic, and cultural factors, and on the increasing importance of Latin America in world affairs.

HY 374—THE INTER-AMERICAN SYSTEM. 3 credits
Diplomatic and other relations between the United States and Latin America, with emphasis on the development of an organized Inter-American system.

HY 381—EAST ASIAN CIVILIZATIONS TO 1800. 4 credits
The historical and cultural development of China, Korea and Japan to 1800.

HY 382—EAST ASIAN CIVILIZATIONS SINCE 1800. 4 credits
The historical development of China, Korea, and Japan under the impact of the West since 1800.

HY 451—THE SOUTH TO 1860. 4 credits
Development of Southern culture from the earliest settlements to the development of Southern nationalism.

HY 452—THE SOUTH SINCE 1860. 4 credits

Impact of Civil War and Reconstruction; the economic, political and social development of the New South.

HY 454—STUDIES IN AMERICAN CIVILIZATION. 4 credits

Examination of selected periods of U.S. history using concepts and data from several related disciplines. Required for the American Studies Program.

HY 455—SENIOR SEMINAR IN AMERICAN CIVILIZATION. 4 credits

A continuation of HY 454 with emphasis on individual projects.

HY 485—TRADITIONAL INDIA. 3 credits

(Identical with RN 485.) An introduction to the civilization of India prior to the impact of the West with consideration of the religious dimension of Indian culture.

HY 486—CONTEMPORARY INDIA. 3 credits

(Identical with RN 486). An examination of selected aspects of 19th and 20th century India, with particular attention to religious and social developments since the impact of the West.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

HY 500—THE NATURE OF HISTORY. 4 credits

An introduction to the philosophy of history, including analysis of interpretations of the historical process, criticism of classical theories of history, and consideration of recent theories on historical explanation.

HY 501, (identical with ASC 501)—ANCIENT AND MEDIEVAL SCIENCE. 3 credits*

An intensive critical study of the historical development of scientific thought from the earliest times down through the Medieval Period. Prerequisite. CPS 121, 122, 123—The Physical Sciences, or their equivalent.

HY 502, (identical with ASC 502)—THE SCIENTIFIC REVOLUTION. 3 credits*

A critical study of the development of scientific thought from the Copernican revolution down through Newton. Prerequisite: CPS 121, 122, 123—The Physical Sciences, or their equivalent.

HY 503, (identical with ASC 503)—SCIENCE SINCE NEWTON. 3 credits*

The development of scientific thought following Newton and down to the present day. Prerequisite: CPS 121, 122, 123—The Physical Sciences, or their equivalent.

HY 508—THE GOLDEN AGE OF GREECE, 546–404 B.C. 4 credits*

As viewed by its chief historians: Herodotus, Thucydides, and Xenophon.

HY 509—THE ROMAN REPUBLIC. 4 credits*

From earliest times to the death of Julius Caesar.

HY 510—EUROPEAN MILITARY HISTORY TO 1783. 4 credits*

The founding and growth of the state controlled military establishment, the exercise of the military art, and military policies treated in connection with relevant political, and economic factors.

HY 511—EUROPEAN MILITARY HISTORY SINCE 1783. 4 credits*

A continuation of HY 510.

HY 513—ECONOMIC AND SOCIAL HISTORY OF MODERN RUSSIA AND THE SOVIET UNION. 4 credits*

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*Available for graduate major credit.

HY 514—TWENTIETH CENTURY EUROPEAN DIPLOMACY TO WORLD WAR II. 4 credits

HY 515—DIPLOMATIC AND MILITARY HISTORY OF WORLD WAR II. 4 credits*

HY 517—EARLY MODERN EUROPE: SOCIETY AND POLITICS. 4 credits*

Impact of cultural developments and ideological conflicts on the social and political structures of Europe. Focus on the 16th century.

HY 519—EUROPEAN THOUGHT, SCIENTIFIC REVOLUTION TO ROMANTIC MOVEMENT. 4 credits*

From the origins of the Enlightenment to the Romantic Movement.

HY 520—EUROPEAN THOUGHT. 4 credits*

A continuation of HY 519 to the present.

HY 521—EUROPEAN EXPANSION, 15TH, 16TH CENTURIES. 4 credits*

Medieval technological and political background, dawn of interest in exploration, Portuguese and Spanish discovery and colonization.

HY 522—EUROPEAN EXPANSION, 17TH, 18TH CENTURIES. 4 credits*

Northern maritime powers enter exploration and colonization, mercantilism, trading patterns, colonial rivalry.

HY 525—THE 18TH CENTURY REVOLUTIONS, 1760–1815. 4 credits*

Prerequisite: HY 202 or HY 325 or equivalents. Origins, nature, development, and interactions of these revolutions, and their impact on the modern world.

HY 526—MODERN FRANCE FROM THE RESTORATION TO THE FIFTH REPUBLIC. 4 credits*

HY 531—GERMANY IN THE 19TH CENTURY. 4 credits*

From the Prussian reform movement through the personal reign of Wilhelm II, with emphasis on the creation of the German Empire.

HY 532—GERMANY IN THE 20TH CENTURY. 4 credits*

From the origins of World War I to divided Germany after World War II. Emphasis on the Weimar Republic and the Nazi era.

HY 534—ECONOMIC HISTORY OF EUROPE TO 1350 A.D. 4 credits*

HY 535—ECONOMIC HISTORY OF EUROPE, 1350–1700. 4 credits*

HY 537—SOUTHERN AFRICA. 4 credits*

The history of Southern Africa from the pre-European era to the present.

HY 539—MODERN AFRICA. 4 credits*

Prerequisite: HY 344 or permission of the instructor. Selected topics in 19th and 20th century African development: pre-colonial conditions, colonial rule, nationalist movements, and the problem of independence.

HY 540—U.S., CULTURAL AND INTELLECTUAL TO THE CIVIL WAR. 4 credits*

Changing patterns of culture in colonial and revolutionary America; cultural development of the new nation to the Civil War.

HY 541—U.S., CULTURAL AND INTELLECTUAL SINCE THE CIVIL WAR. 4 credits*

Cultural development from the Civil War to the critical decade of the 1890's; cultural patterns in the 20th century.

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*Available for graduate major credit.

HY 543—U.S. MILITARY POLICY IN WAR AND PEACE 1. 3 credits*
From European background in the 18th century through the Civil War. Not drum and trumpet history, but the relationship of military institutions to the rest of U.S. history. Emphasizes the search for peace as well as war.

HY 544—U.S. MILITARY POLICY IN WAR AND PEACE 2. 3 credits*
Since 1865. Emphasized the managerial revolution at the end of the 19th century, the hypertrophy of war, and introduces modern defense and peace problems.

HY 545—U.S., POPULIST ERA TO THE GREAT DEPRESSION. 4 credits*
The Populist era; Progressivism, WWI; postwar America; and the twenties.

HY 546—U.S., SINCE THE GREAT DEPRESSION. 4 credits*
Depression and New Deal; WWII; America as world power; and social revolution.

HY 547—COLLOQUIUM, HISTORY OF THE AFRO-AMERICAN. 4 credits*
Prerequisite: Permission of the instructor. A reading-and-discussion course which each year gives concentrated attention to a different aspect of black history and culture.

HY 548—PROBLEMS IN AFRO-AMERICAN HISTORY. 4 credits*
Permission of instructor. A reading-and-discussion course with primary focus on the question of black nationalism versus assimilation in the U.S. with concentrated attention to issues and movements and the condition of Afro-American accommodation and resistance.

HY 554—COLONIAL AMERICA. 4 credits*
Prerequisite: HY 245. Description and analysis of the origins of the Anglo-North American colonies; development of colonial society, economy, culture and institutions; international rivalry for North American supremacy.

HY 555—AMERICAN REVOLUTIONARY ERA. 4 credits*
Prerequisite: HY 245. The Great War for Empire and post war adjustments; deterioration of relations between the colonies and England, 1763–75; War for Independence; government under the Articles of Confederation and the movement for constitutional revision.

HY 560—THE IBERIAN PENINSULA TO 1700. 4 credits*
Medieval background, the rise of Portugal and Castile, unification under the Hapsburgs, social, religious, and economic life, the Braganza restoration in Portugal.

HY 561—THE IBERIAN PENINSULA SINCE 1700. 4 credits*
Spanish succession, international developments, the Bourbon and Braganza monarchies, social and economic life, Portuguese and Spanish institutions compared, the Iberian Republics, the Spanish Civil War.

HY 570—CARIBBEAN, THE OLD COLONIAL SYSTEM. 4 credits*
Comparison of the colonial regimes in the West Indies and Central America to 1821 (c), international rivalry, slavery and the slave trade.

HY 571—CARIBBEAN, 19TH AND 20TH CENTURIES. 4 credits*
Development of the West Indies and Central America with emphasis on the decline of colonial rule and on economic and social evolution.

HY 572—MEXICO TO 1848. 4 credits*
Indian background, conquest, colonial development, independence movement, neo-colonial period, war with the U.S.

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*Available for graduate major credit.

HY 573—MEXICO SINCE 1848. 4 credits*

Aftermath of war with the U.S., Constitution of 1857, Second Empire *Porfiriato*, Mexican Revolution, contemporary trends.

HY 574—THE GRAN COLOMBIAN NATIONS. 4 credits*

Development of Colombia, Venezuela, and Ecuador from the late colonial period to date.

HY 576—THE PLATINE REPUBLICS. 4 credits*

Argentina, Paraguay, and Uruguay since the late 18th century.

HY 577—CHILE, PERU AND BOLIVIA. 4 credits*

Political and social evolution in western South America from independence to the present.

HY 578—BRAZIL TO 1822. 4 credits*

Prerequisite: HY 371. Foundations of Portuguese civilization in Brazil, sugar planters, bandeirantes, miners, ranchers, and slaves. Political, social and economic developments from 1500 to 1822.

HY 579—BRAZIL SINCE 1822. 4 credits*

Prerequisite: HY 371. Monarchy, wars, slavery, the military question, the Republic, coffee, industrialization, 20th century ideologies.

HY 581—EAST ASIAN THOUGHT. 4 credits*

Prerequisite: HY 381. Ancient Chinese thought, revitalization of Confucianism, neo-Confucianism in Japan and Korea, 20th century attack upon it.

HY 582—JAPAN TO 1800. 4 credits

Prerequisite: Upper division standing. Yamato Japan, adoption of Chinese institutions, the rise and evolution of Japanese feudalism, Japan's first contact with the West, establishment of the Bakuhan structure.

HY 583—JAPAN SINCE 1800. 4 credits

Decline of Tokugawa feudalism, the Meiji restoration, the growth of Japan as a nation-state.

HY 591—MASTERPIECES IN SOCIAL SCIENCES 1. 4 credits*

(Identical with SY 591, ES 591, PCL 591.) For advanced students with background in the social sciences and approval of major adviser and course chairman. Readings from classics in economics, history, political science, sociology and cultural anthropology.

HY 592—MASTERPIECES IN SOCIAL SCIENCES 2. 4 credits*

(Identical with SY 592, ES 592, PCL 592.) For advanced students with background in the social sciences and approval of major adviser and course chairman. A continuation of HY 591, studying a different set of classics.

HY 593—MASTERPIECES IN SOCIAL SCIENCES 3. 4 credits*

(Identical with SY 593, ES 593, PCL 593.) For advanced students with background in the social sciences and approval of major adviser and course chairman. A continuation of HY 592, studying a different set of classics.

HY 597—SENIOR THESIS. 4 credits

Prerequisite: Senior standing and permission of the Department. Directed research leading to the submission of an original thesis. Required for candidates for High Honors and for Departmental honors.

HY 599—SPECIAL STUDIES. 4 credits.* Maximum 16 credits

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*Available for graduate major credit.

GRADUATE COURSES

HY 602—THEORIES AND METHODS 1. 4 credits
HY 603—THEORIES AND METHODS 2. 4 credits
HY 613—THE MIDDLE AGES. 4 credits. Maximum 12 credits
HY 614—THE UNITED STATES IN THE WORLD ECONOMY, 1783-1960. 5 credits
HY 618—EUROPE, 1500 TO 1763. 4 credits
HY 619—EUROPEAN EXPANSION. 4 credits
HY 620—SEMINAR IN THE HISTORY OF MODERN EUROPEAN THOUGHT. 4 credits. Maximum 12 credits
HY 623—READINGS, MODERN EUROPE. 4 credits. Maximum 12 credits
May be repeated with total credits of 12 hours for 1763-1815; 1815-1914; 1914 to the present.
HY 624—CENTRAL EUROPE. 4 credits
HY 625—WESTERN EUROPE SINCE THE FRENCH REVOLUTION. 4 credits
HY 626—EASTERN EUROPE. 4 credits
HY 630—INDIVIDUAL STUDY. 4 credits. Maximum 16 credits
HY 633—ENGLAND 4 credits. Maximum 12 credits
HY 641—SEMINAR IN THE HISTORY OF AMERICAN MILITARY POLICY. 4 credits. Maximum 8 credits
HY 642—SEMINAR IN AMERICAN THOUGHT. 4 credits. Maximum 12 credits
HY 646—COLONIAL AMERICA. 4 credits
HY 647—UNITED STATES, EARLY NATIONAL. 4 credits
HY 648—UNITED STATES, THE MIDDLE PERIOD. 4 credits
HY 649—UNITED STATES, DIVISION AND REUNION. 4 credits
HY 650—THE EMERGENCE OF MODERN AMERICA. 4 credits
HY 651—RECENT AMERICA. 4 credits
HY 660—AFRICA. 4 credits. Maximum 12 credits
HY 670—HISTORICAL LITERATURE OF LATIN AMERICA 1. 4 credits
HY 671—HISTORICAL LITERATURE OF LATIN AMERICA 2. 4 credits
HY 672—BRAZIL. 4 credits. Maximum 12 credits
HY 673—SPANISH-AMERICA 4 credits. Maximum 12 credits
HY 681—READINGS IN CHINESE HISTORY. 4 credits
HY 682—READINGS IN JAPANESE HISTORY 4 credits
HY 697—SUPERVISED RESEARCH. 1 to 5 credits
HY 698—SUPERVISED TEACHING. 1 to 5 credits
HY 699—MASTER'S RESEARCH. 1 to 15 credits
HY 700—COMPARATIVE HISTORY. 4 credits. Maximum 12 credits
HY 799—DOCTORAL RESEARCH. 1 to 15 credits

Latin American Studies

For a description of the Undergraduate Program in Latin American Studies see CENTER FOR LATIN AMERICAN STUDIES. Also consult the course offerings of the various departments in this catalogue, the Graduate School Catalogue, and the yearly Bulletin published by the Center for Latin American Studies. Copies of the Bulletin may be obtained at 450 College Library.

GRADUATE COURSES

LA 640—LATIN AMERICAN AREA SEMINAR. 5 credits. Maximum 15 credits
LA 678—SEMINAR IN LAW AND DEVELOPMENT: LATIN AMERICA. 4 credits
LA 694—SEMINAR PREPARATION. 1 credit
LA 699—MASTER'S RESEARCH. 1 to 15 credits
LA 799—DOCTORAL RESEARCH. 1 to 15 credits

Library Science

INSTRUCTIONAL STAFF 1969-70

Harrer, G. A., *Chairman;* Daane, B.; Liles, A. L.; McLendon, E. M.; Monti, L. V.; Smith, F. S.; Spears, L. W.; Youngs, M. A.

LY 200—HISTORY OF BOOKS, PRINTING, AND LIBRARIES. 3 credits

The book, the invention of printing and the place of libraries in the development of western culture. An introduction to the library profession.

LY 201—USE OF BOOKS AND LIBRARIES. 2 credits

Detailed study of the basic and most useful reference books and bibliographic aids. Practice problems in the use of specific titles and in how to find materials in the library.

LY 301—INTRODUCTION TO LIBRARY MATERIALS. 4 credits

Principles and methods of, and tools for, evaluating, selecting, and acquiring book and non-book materials and their use for reference, instructional and recreational purposes for school, public, university and special libraries.

LY 402—LIBRARY MATERIALS FOR CHILDREN. 4 credits

Prerequisite: LY 301. Application of selection principles for book and non-book materials for children, emphasizing literary values and children's growth and developmental needs and interests; imaginative and realistic stories and poetry, illustrators and illustrations, enrichment and multi-sensory materials, reference materials, reading guidance, story-telling and book-talk techniques.

LY 403—LIBRARY MATERIALS FOR YOUNG PEOPLE. 4 credits

Prerequisite: LY 301. Application of selection principles for book and non-book materials for young people, emphasizing literary values and the growth and developmental needs and interests of young people; fiction, non-fiction in curricular and interest areas, reference books, periodicals, series and editions, multi-sensory materials, book-talk techniques, vocational and reading guidance.

LY 411—LIBRARY ADMINISTRATION 1. 4 credits

Principles, problems, programs, practices, and services of public, university and special library organizations, including support and financing, personnel, facilities and equipment, and evaluation. Processing, maintenance and circulation of materials; statistical records and reports.

LY 412—LIBRARY ADMINISTRATION 2. 4 credits

Problems and practices of public, university and special library organizations: including facilities and equipment; processing, maintenance and circulation of materials; and statistical records and reports.

LY 415—BASIC REFERENCE MATERIALS. 5 credits

Prerequisite: LY 301. A study of the basic types of reference materials with practice in their use. Part I—Public, University and Special Libraries; Part II—School Libraries.

LY 425—INTRODUCTORY CATALOGING AND CLASSIFICATION. 5 credits

Prerequisite: LY 411. Theory, principles, and techniques in organizing library materials with emphasis on the requirements for smaller libraries; relationship of cataloging to other functions of the library; practice work in descriptive cataloging and application of Dewey Decimal Classification and Sears' List of Subject Headings.

LY 530—INDIVIDUAL WORK. 3 to 6 credits

GRADUATE COURSES

LY 615—ADVANCED REFERENCE AND BIBLIOGRAPHY. 4 credits

LY 625—ADVANCED CATALOGING AND CLASSIFICATION. 4 credits

LY 630—INDIVIDUAL WORK. 3 to 5 credits

Mathematics

INSTRUCTIONAL STAFF 1969-70

Bednarek, A. R., *Chairman;* Bacon, P.; Blake, R. G.; Brechner, B. L.; Brooks, J. K.; Clark, W. E.; Conner, B.O.; de Groot, J.; Drake, D. A.; Elsner, J.; England, W. T.; Ferguson, E. N.; Ganas, P S.; Gerardo, A.; Goodwin, J. R.; Graumann, G.; Hadlock, E. H.; Hanson, T. H. McH.; Hearsey, B. V.; Herrlich, H.; Janos, L.; Jensen, G. A.; Karlowicz, M.; Kaiser, J. W.; Keesling, J. E.; Khuri, A. I.; Kim, D. S.; Kolzow, H. D.; Kuczma, M. W.; Ligh, S. C.; Luehr, C. P.; Martinez, J.; Mauldin, R. D.; Meakin, J. C.; Mikusinski, J.; Moore, T. O.; Morse, W. P.; Myers, F. C.; Nanzetta, P. N.; Nelson, C. W.; O'Connor, J. L.; Phelps, D. G.; Pirenian, Z. M.; Pop-Stojanovic, Z. R.; Rodriguez, R. S.; Row, A. W.; Sadler, S. G.; Saxon, S. A.; Schnare, P. S.; Selfridge, R. G.; Shrestha, G. M.; Sigmon, K. N.; Slotterbeck, O. A.; Stadtlander, D. P.; Stark, R. K.; Strecker, G. E.; Tangeman, R. L.; Teply, M. L.; Thompson, R. H.; Varma, A. K.; Wallace, A. D.; Willard, D.

Students who have had at least three years of high school mathematics including a brief introduction to trigonometry should begin their work in Mathematics with one of the following courses: MS 201 (for Architecture students), MS 204 (for Economics and Business students), MS 211 (for Social Science students), MS 345 (for students in the B.S. in Mathematics program), or MS 301 (for all others).

Students desiring to major in mathematics have four programs open to them. The departmental requirements are as follows:

Pregraduate Program: MS 301, MS 302, MS 303, MS 431, MS 432, MS 433, MS 551, MS 552, MS 541, MS 542, MS 543 plus two of MS 531, MS 532, MS 533, MS 561, MS 562, MS 544 or MS 545.

Terminal Bachelors Program: MS 301, MS 302, MS 303, MS 304, MS 305, MS 324, MS 410, MS 411, MS 431, MS 501, STA 440, ISE 350, plus two of MS 502, MS 503, MS 504, or MS 505.

The first of these programs adequately prepares the student either to enter graduate school or to take a job in industry. The second program gives a better background for students desiring to become industrial mathematicians, but is not recommended for those planning to enter graduate school.

The third program is for students wishing to receive a degree in mathematics through the College of Arts and Sciences while simultaneously getting accreditation for teaching secondary mathematics. For the Mathematics Education Program, the following are required: MS 301, MS 302, MS 303, MS 320, MS 321, MS 325 or MS 431, MS 326 or MS 432, EDF 345 and EDF 300 or EDF 320 or EDF 410 or EDF 431, EDS 400, EDS 403, EDS 454 and EDS 405 plus 12 credit hours from MS 324, MS 433, MS 322, MS 400, MS 401, MS 402 or MS 405.

These programs may be varied to suit the individual needs of the student.

In addition to the three above programs the Department offers a special program leading to the degree of Bachelor of Science in Mathematics.

The requirements for this program are described in the Arts and Science section of this catalog.

MS 102—ALGEBRA AND TRIGONOMETRY. 5 credits

Prerequisite: Two years of high school algebra. This course will not count as major credit in mathematics.

MS 201—ANALYTIC GEOMETRY AND CALCULUS FOR ARCHITECTURE. 5 credits

A geometric and heuristic approach to plane analytic geometry and calculus. Includes both differentiation and integration of simple algebraic and trigonometric functions including the finding of moments and centroids and the interpretation of derivatives and integrals.

MS 204—CALCULUS FOR ECONOMICS AND BUSINESS. 5 credits

Topics include differential calculus, introduction to integration, introduction to partial differentiation, maxima and minima problems.

MS 211—BASIC MATHEMATICS FOR THE SOCIAL SCIENCES. 4 credits

Introductory course in the following topics: Compound statements, sets and subsets, partitions and counting, probability theory, vectors and matrices, and linear programming.

MS 213—DISCRETE STRUCTURES. 4 credits

Set algebra including mappings. Semigroups and groups. Directed and undirected graphs. Elementary Boolean algebra. Elementary algorithms.

MS 301—ANALYTIC GEOMETRY AND CALCULUS 1. 5 credits

Inequalities, functions, equations of a line, limits and continuity, differentiation of algebraic functions, applications.

MS 302—ANALYTIC GEOMETRY AND CALCULUS 2. 5 credits

Prerequisite: MS 301. Definite integrals, trigonometric, logarithmic and exponential functions and their derivatives, areas, volumes and length.

MS 303—ANALYTIC GEOMETRY AND CALCULUS 3. 5 credits

Prerequisite: MS 302. Mean value theorem, lines and planes in space, infinite sequences and series, vectors, conics, quadric curves and surfaces.

MS 304—ANALYTIC GEOMETRY AND CALCULUS 4. 5 credits

Prerequisite: MS 303. Vector valued functions, curvature, partial derivatives, line integrals, multiple integration, surface area.

MS 305—ELEMENTARY DIFFERENTIAL EQUATIONS. 3 credits

Prerequisite: MS 304. First order differential equations, general theorems on linear differential equations, solution of second order linear equations with constant coefficients, the Laplace transform, solution of equations by the Laplace transform.

MS 310—MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS 1. 3 credits

A study of the structure of whole numbers and newer mathematical topics included in modern elementary school mathematics programs.

MS 311—MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS 2. 3 credits

Prerequisite: MS 310. Properties and operations of rational numbers, ratio, proportion, per cent, and an introduction to real numbers.

MS 312—MATHEMATICS FOR ELEMENTARY SCHOOL TEACHERS 3. 3 credits

Prerequisite: MS 311 or by permission of the instructor. Topics include an introduction to equations, inequalities, and geometry as these topics are related to modern elementary mathematics programs, and the nature of mathematical systems.

MS 313—INTRODUCTION TO NUMBER THEORY. 3 credits

Prerequisite: 9 hours of mathematics. Divisibility, primes and composites, divisors, multiples, Euclid's algorithm, Diophantine equations, modular arithmetic, and simple continued fractions.

MS 314—MATHEMATICS FOR JUNIOR HIGH SCHOOL SCIENCE TEACHERS 1. 3 credits

Offered by extension only. Designed as an off-campus and in-service course. Sets, functions and relations, graphic representation of equations and inequalities, ratio and proportion, measurement (direct and indirect), and pre-algebra mathematics.

MS 315—MATHEMATICS FOR JUNIOR HIGH SCHOOL SCIENCE TEACHERS 2. 3 credits

Offered by extension only. Prerequisite: MS 314. Designed as an off-campus and in-service course. A continuation of MS 314.

MS 316—MATHEMATICS FOR JUNIOR HIGH SCHOOL MATHEMATICS TEACHERS 1. 3 credits

An analysis and extension of concepts included in modern junior high school mathematics programs such as state adopted texts or SMSG material 7, 8 and 9. Topics include sets, properties and operations of the real numbers, numeration systems and bases, additional work in ratios and proportion, percentage, aspects of measurement and geometry, and number congruences.

MS 317—MATHEMATICS FOR JUNIOR HIGH SCHOOL MATHEMATICS TEACHERS 2. 3 credits

Prerequisite: MS 316. A continuation of MS 316.

MS 318—MODERN INTRODUCTORY MATHEMATICS. 9 credits

For National Science Foundation participants only. Designed primarily for junior high school teachers. Sets, logical systems, rational number system, arithmetic, number bases and the applications of arithmetic, modular arithmetic, algebra, functions, relations, graphing two-variable functions and relations, exponents, algebraic procedures, variation, inequalities, geometry, measurement, plane and space figures, perimeters, areas, volume, statistics, measures of central tendency, dispersion, standard deviation, normal curve.

MS 320—GEOMETRY 1. 3 credits

Prerequisite: 6 hours of mathematics. A systematic study of the axiomatic structure of Euclidean geometry, including a comparison of the metric (Birkhoff) and synthetic (Hilbert) developments of absolute geometry; parallelism, similarity, area, lines and planes in space, solid mensuration.

MS 321—GEOMETRY 2. 3 credits

Prerequisite: MS 320 or permission of the instructor. A continuation of MS 320.

MS 322—GEOMETRY 3. 3 credits

Prerequisite: MS 321 or permission of the instructor. A continuation of MS 321. This course also includes an introduction to Non-Euclidean geometry.

MS 323—CONTEMPORARY GEOMETRY. 9 credits

For National Science Foundation participants only. Study of postulational geometry (modern systems such as those developed at Ball State, Yale (S.M.S.G.) and Illinois). The rigor of Euclid's elements. Introduction to the following non-Euclidean geometries: Synthetic hyperbolic and synthetic and analytic projective. Coordinate systems and their uses in geometry.

MS 324—INTRODUCTION TO MATRIX THEORY. 3 credits

Prerequisite: MS 301 or 201 or 400. Vectors, matrices, forms, eigenvalues.

MS 325—INTRODUCTION TO ABSTRACT ALGEBRA. 3 credits

Prerequisite: MS 301 or 201 or 400. Properties of the natural numbers, integers, and rational numbers. Groups, semigroups, rings, integral domains, fields, isomorphisms, homomorphisms, and equivalence classes.

MS 326—ABSTRACT ALGEBRA. 3 credits

Prerequisite: MS 325. A continuation of MS 325.

MS 327—INTRODUCTION TO MODERN ALGEBRA. 9 credits

For National Science Foundation participants only. Basic ideas of sets and axiomatic approach to the number system, rings, integral domains, fields, polynomials, groups, vector spaces, linear transformations and matrices, linear equations and determinants, and other algebraic systems.

MS 330—CALCULUS FOR TEACHERS 1. 3 credits

Offered by extension only. Prerequisite: A basic course in calculus or permission of the instructor. Designed as an off-campus and in-service course. Limits; continuity; differentiation of algebraic, trigonometric, exponential, and logarithmic functions; derivatives, antiderivatives, curve tracing, and series.

MS 331—CALCULUS FOR TEACHERS 2. 3 credits

Offered by extension only. Prerequisite: MS 330. A continuation of MS 330.

MS 332—CALCULUS FOR TEACHERS 3. 3 credits

Offered by extension only. Prerequisite: MS 331. A continuation of MS 331.

MS 333—CALCULUS FOR TEACHERS. 9 credits

For National Science Foundation participants only. Limits, continuity, implicit and inverse functions, derivatives and differentials of algebraic, trigonometric, antitrigonometric, exponential, logarithmic and hyperbolic functions. Rolle's mean value and generalized mean value theorems. Summation notation, indefinite, definite, and improper integrals. Areas, volumes, pressure, work, curves, surfaces. Integration by parts, substitution, and partial fractions. Indeterminant forms. Geometric, power, and Maclaurin series.

MS 345—INTRODUCTION TO REAL ANALYSIS 1. 5 credits

Prerequisite: Consent of the Department. The first of the courses in the Special Program. Topics include the theory of differentiation and integration of functions of one or more variables, convergence of sequences and series, continuity, uniform continuity, uniform convergence.

MS 346—INTRODUCTION TO REAL ANALYSIS 2. 5 credits

Prerequisite: MS 345 or consent of the Department. Part of sequence MS 345-46-47-445-46-47.

MS 347—INTRODUCTION TO REAL ANALYSIS 3. 5 credits

Prerequisite: MS 346 or consent of the Department.

MS 400—MATHEMATICS FOR SENIOR HIGH SCHOOL TEACHERS 1. 3 credits

Prerequisite: 9 hours of college mathematics or permission of instructor. Logic, nature of deductive proof, mathematical induction, properties of real numbers, inequalities, sequences and series, and the binomial theorem.

MS 401—MATHEMATICS FOR SENIOR HIGH SCHOOL TEACHERS 2. 3 credits

Prerequisite: MS 400 or permission of instructor. Complex numbers, operations with vectors, use of vectors in study of analytic geometry, relations and functions, continuity, graphing of polynomial functions through the use of the derivative.

MS 402—MATHEMATICS FOR SENIOR HIGH SCHOOL TEACHERS 3. 3 credits

Prerequisite: MS 401 or permission of instructor, Exponential, logarithmic and circular functions, polar coordinates, conic sections, matrices, and vectors in three-space.

MS 403—MODERN INTRODUCTORY ANALYSIS. 9 credits

For National Science Foundation participants only. Content of this course has been selected primarily for the senior high school teacher of mathematics. The course will cover sets, fields, the real and complex number systems, the algebra of vectors, sequences and series, plane analytic geometry, matrices, algebraic, exponen-

tial, logarithmic, circular and trigonometric functions, inverse functions, inequalities, graphs of polynomial functions, permutations, combinations, and probability.

MS 405—HISTORY OF MATHEMATICS. 3 credits

Prerequisite: 12 hours of mathematics or permission of instructor. A survey of the historical development of pre-calculus mathematics.

MS 410—NUMERICAL METHODS IN LINEAR ALGEBRA. 3 credits

Prerequisite: MS 204 or MS 303. Solution of linear equations, matrix methods, matrix eigenvalue problems. Introduction to computer methods.

MS 411—NUMERICAL METHODS IN ANALYSIS. 3 credits

Prerequisite: MS 410. Numerical integration and differentiation, differential equations, partial differential equations, harmonic analysis.

MS 430—INDIVIDUAL WORK. 1 to 4 credits

Prerequisite: MS 303 and permission of Chairman of Department. For special topics not obtainable in the regular course offerings. May be repeated for credit. Maximum of 15 credits.

MS 431—SURVEY OF MODERN ALGEBRA 1. 3 credits

Prerequisite: MS 303, 202, or 204. An introductory treatment of modern algebra: Sets and mappings; the integers; rings and domains; groups and subgroups; vector spaces, linear transformations and matrices; fields; homomorphisms and isomorphisms.

MS 432—SURVEY OF MODERN ALGEBRA 2. 3 credits

Prerequisite: MS 431. A continuation of MS 431.

MS 433—SURVEY OF MODERN ALGEBRA 3. 3 credits

Prerequisite: MS 432. A continuation of MS 432.

MS 435—INTRODUCTION TO MODERN ALGEBRA 1. 3 credits

Prerequisite: MS 347 or consent of the Department. Matrices, determinants, vector spaces, linear transformations, groups, integral domains, rings, ideals, fields, homomorphisms, isomorphism, factor groups.

MS 436—INTRODUCTION TO MODERN ALGEBRA 2. 3 credits

Prerequisite: MS 435. A continuation of sequence MS 435-36-37.

MS 437—INTRODUCTION TO MODERN ALGEBRA 3. 3 credits

Prerequisite: MS 436. A continuation of sequence MS 435-36-37.

MS 445—INTRODUCTION TO REAL ANALYSIS 4. 3 credits

Prerequisite: MS 347 or consent of the Department.

MS 446—INTRODUCTION TO REAL ANALYSIS 5. 3 credits

Prerequisite: MS 445.

MS 447—INTRODUCTION TO REAL ANALYSIS 6. 3 credits

Prerequisite: MS 446.

MS 490—SPECIAL TOPICS IN MATHEMATICS. 1 to 5 credits

Prerequisite: Permission of the Chairman of the Department's Undergraduate Advisory Panel who should be consulted well in advance of registration. May be repeated for credit. Maximum of 24 credits.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

MS 501—INTERMEDIATE DIFFERENTIAL EQUATIONS FOR ENGINEERS AND PHYSICAL SCIENTISTS. 3 credits*

Prerequisite: MS 305. Series solutions of differential equations, Sturm-Liouville systems.

*Available for graduate major credit.

MS 502—VECTOR ANALYSIS. 3 credits*

Prerequisite: MS 304. Vector analysis including the integral theorems; applications.

MS 503—INTRODUCTION TO COMPLEX VARIABLES FOR ENGINEERS AND PHYSICAL SCIENTISTS 1. 3 credits*

Prerequisite: MS 305. Introduction to the theory of functions of a complex variable.

MS 504—INTRODUCTION TO COMPLEX VARIABLES FOR ENGINEERS AND PHYSICAL SCIENTISTS 2. 3 credits*

Prerequisite: MS 503. Continuation of the study of analytic functions; Fourier and Laplace transforms.

MS 505—INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS. 3 credits*

Origin and solution of partial differential equations by various methods including Lagrange linear equations; elementary partial differential equations of mathematical physics.

MS 531—INTRODUCTORY ALGEBRA 1. 3 credits*

Prerequisite: MS 433. The basic algebraic systems: Groups, rings, vector spaces and modules. Linear transformations, matrices, and determinants. Galois theory.

MS 532—INTRODUCTORY ALGEBRA 2. 3 credits*

Prerequisite: MS 531. A continuation of MS 531.

MS 533—INTRODUCTORY ALGEBRA 3. 3 credits*

Prerequisite: MS 532. A continuation of MS 532.

MS 541—MODERN ANALYSIS 1. 3 credits*

Corequisite: MS 551. Topology of metric spaces, numerical sequences and series, continuity, differentiation, the Riemann-Stielties integral, sequences and series of functions, the Stone-Weierstrass theorem, functions of several variables, Stokes' theorem, the Lebesgue theory.

MS 542—MODERN ANALYSIS 2. 3 credits*

Prerequisite: MS 541. A continuation of MS 541.

MS 543—MODERN ANALYSIS 3. 3 credits*

Prerequisite: MS 542. A continuation of MS 542.

MS 544—DIFFERENTIAL EQUATIONS 1. 3 credits*

Prerequisite: MS 543 or 447 and some linear algebra. Existence theorems for ordinary differential equations, initial and boundary value problems.

MS 545—DIFFERENTIAL EQUATIONS 2. 3 credits*

Prerequisite: MS 544. Part of sequence 544-45.

MS 547—ADVANCED CALCULUS 1. 3 credits*

Prerequisite: MS 303. Foundations of Calculus of functions of real variables, differentiation, Riemann-Stieltjes integration, multiple and line integrals, infinite series.

MS 548—ADVANCED CALCULUS 2. 3 credits*

Prerequisite: MS 547. A continuation of MS 547.

MS 549—ADVANCED CALCULUS 3. 3 credits*

Prerequisite: MS 548. A continuation of MS 548.

MS 551—PROSEMINAR 1. 4 credits*

Basic set theory, maximality principles, transfinite induction, cardinal and ordinal numbers, basic concepts of category theory, topological notions, Tychonoff theorem, product theorem for connected spaces, Baire category theorem and Urysohn's lemma.

*Available for graduate major credit.

MS 552—PROSEMINAR 2. 4 credits*
Prerequisite: MS 551. A continuation of MS 551.

MS 553—PROSEMINAR 3. 4 credits*
Prerequisite: MS 552. A continuation of MS 552.

MS 555—INTRODUCTION TO ANALYTIC FUNCTIONS 1. 3 credits*
Prerequisite: MS 561 or consent of instructor. Properties of analytic functions, representation theorems.

MS 556—INTRODUCTION TO ANALYTIC FUNCTIONS 2. 3 credits*
Prerequisite: MS 555. A continuation of the sequence MS 555-556.

MS 561—INTRODUCTION TO TOPOLOGY 1. 3 credits*
Prerequisite: MS 541 or equivalent. Set theory; the real line, topological notions; Heine-Borel Theorem; mappings, continuous functions and homomorphisms; Hausdorff spaces; metric spaces; the Euclidean spaces.

MS 562—INTRODUCTION TO TOPOLOGY 2. 3 credits*
Prerequisite: MS 561. A continuation of MS 561.

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*Available for graduate major credit.

GRADUATE COURSES

MS 601—REAL AND COMPLEX VARIABLES FOR ENGINEERS AND PHYSICAL SCIENTISTS 1. 3 credits
MS 602—REAL AND COMPLEX VARIABLES FOR ENGINEERS AND PHYSICAL SCIENTISTS 2. 3 credits
MS 603—REAL AND COMPLEX VARIABLES FOR ENGINEERS AND PHYSICAL SCIENTISTS 3. 3 credits
MS 604—INTEGRAL TRANSFORMS FOR ENGINEERS AND PHYSICAL SCIENTISTS. 3 credits
MS 605—LINEAR INTEGRAL EQUATIONS FOR ENGINEERS AND PHYSICAL SCIENTISTS. 3 credits
MS 606—INTRODUCTION TO NONLINEAR EQUATIONS FOR ENGINEERS AND PHYSICAL SCIENTISTS. 3 credits
MS 607—FOURIER SERIES 1. 3 credits
MS 608—FOURIER SERIES 2. 3 credits
MS 609—INTRODUCTION TO CALCULUS OF VARIATIONS FOR ENGINEERS AND PHYSICAL SCIENTISTS. 3 credits
MS 610—TENSOR ANALYSIS. 3 credits
MS 611—APPLICATIONS OF GROUP THEORY IN THE PHYSICAL SCIENCES. 3 credits
MS 614—NUMERICAL ANALYSIS. 3 credits
MS 615—PARTIAL DIFFERENTIAL EQUATIONS 1. 3 credtis
MS 616—PARTIAL DIFFERENTIAL EQUATIONS 2. 3 credits
MS 617—PARTIAL DIFFERENTIAL EQUATIONS 3. 3 credits
MS 631—ALGEBRA 1. 3 credits
MS 632—ALGEBRA 2. 3 credits
MS 633—ALGEBRA 3. 3 credits
MS 635—PROJECTIVE GEOMETRY. 3 credits
MS 636—NON-EUCLIDEAN GEOMETRY. 3 credits
MS 637—HIGHER GEOMETRY. 3 credits
MS 638—DIFFERENTIAL GEOMETRY 1. 3 credits
MS 639—DIFFERENTIAL GEOMETRY 2. 3 credits
MS 640—DIFFERENTIAL GEOMETRY 3. 3 credits
MS 641—GENERAL THEORY OF MEASURE AND INTEGRATION 1. 3 credits
MS 642—GENERAL THEORY OF MEASURE AND INTEGRATION 2. 2 credits
MS 643—GENERAL THEORY OF MEASURE AND INTEGRATION 3. 3 credits
MS 645—ADVANCED TOPICS IN INTEGRATION 1. 3 credits

MS 646—ADVANCED TOPICS IN INTEGRATION 2. 3 credits
MS 647—ADVANCED TOPICS IN INTEGRATION 3. 3 credits
MS 651—COMPLEX ANALYSIS 1. 3 credits
MS 652—COMPLEX ANALYSIS 2. 3 credits
MS 653—COMPLEX ANALYSIS 3. 3 credits
MS 661—ALGEBRAIC TOPOLOGY 1. 3 credits
MS 662—ALGEBRAIC TOPOLOGY 2. 3 credits
MS 663—ALGEBRAIC TOPOLOGY 3. 3 credits
MS 671—THE JOURNAL SEMINAR. 1 credit
MS 675—INDIVIDUAL WORK. 3 credits. Maximum 12 credits
MS 676—INDIVIDUAL WORK. 1 credit
MS 681—GENERAL TOPOLOGY 1. 3 credits
MS 682—GENERAL TOPOLOGY 2. 3 credits
MS 683—GENERAL TOPOLOGY 3. 3 credits
MS 690—SPECIAL TOPICS IN MATHEMATICS. 3 credits
MS 697—SUPERVISED RESEARCH. 1 to 5 credits
MS 698—SUPERVISED TEACHING. 1 to 5 credits
MS 699—MASTER'S RESEARCH. 1 to 15 credits
MS 701—BINARY TOPOLOGICAL ALGEBRA 1. 3 credits
MS 702—BINARY TOPOLOGICAL ALGEBRA 2. 3 credits
MS 703—BINARY TOPOLOGICAL ALGEBRA 3. 3 credits
MS 745—THEORY OF NUMBERS 1. 3 credits
MS 746—THEORY OF NUMBERS 2. 3 credits
MS 747—THEORY OF NUMBERS 3. 3 credits
MS 755—ALGEBRAIC AND FUNCTIONAL ANALYSIS 1. 3 credits
MS 756—ALGEBRAIC AND FUNCTIONAL ANALYSIS 2. 3 credits
MS 757—ALGEBRAIC AND FUNCTIONAL ANALYSIS 3. 3 credits
MS 765—ADVANCED TOPICS IN ALGEBRA 1. 3 credits
MS 766—ADVANCED TOPICS IN ALGEBRA 2. 3 credits
MS 767—ADVANCED TOPICS IN ALGEBRA 3. 3 credits
MS 799—DOCTORAL RESEARCH. 1 to 15 credits

Meteorology

INSTRUCTIONAL STAFF 1969-70

Ballard, S. S., *Chairman;* Prasad, S. S.; Rappenecker, C.; Strickland, D. J.

MTY 200—ELEMENTARY METEOROLOGY AND ATMOSPHERIC PHYSICS. 3 credits

Prerequisite: CPS 121. The phenomena of weather and climate and of the upper atmosphere, including the stratosphere, mesophere, and thermosphere.

MTY 300—GENERAL METEOROLOGY. 3 credits

Designed for the secondary school science teacher. A study of atmospheric structure, general circulation, air masses and fronts, with discussions of current weather situations. Not available for students who have completed MTY 200.

MTY 301—PHYSICAL CLIMATOLOGY. 3 credits

Prerequisite: MTY 200 or MTY 300. The physical bases of climatology.

Music

(A major in Music is offered in Arts and Sciences. For course descriptions see College of Architecture and Fine Arts.)

Philosophy

INSTRUCTIONAL STAFF 1969-70

Hanna, T. L., *Chairman;* Allison, H. E.; Bartlett, G. R.; Elliott, H. H.; Haynes, R. P.; Jones, W. B.; Kurtzman, D. R.; Lewis, A. L.; Megill, K. A.; Millikan, J. D.; Morris, C. W.; Stahmer, H. M.; Standley, G. B.; Storer, M. B.; Wild, J. D.; Zeman, J. J.; Zweig, M. B.

A philosophy major requires a minimum of 39 quarter hours of course work in philosophy. It is recommended that a student majoring in philosophy consult an advisor in order to plan a balanced program, which usually includes 15 hours of 500 level courses. Those students who are planning to do graduate work in philosophy will be strongly advised to take work in the History of Philosophy and to include some study of Logic, Metaphysics, Epistemology and Ethics. There are no prerequisites for 200 and 300 level courses. The 200 level courses are introductory and general, whereas the 300 level courses deal with specific problems or philosophic areas.

PPY 200—LOGIC. 4 credits
A study of logic as it related to language and problems of induction and deduction.

PPY 201—INTRODUCTION TO PHILOSOPHY. 4 credits
A consideration of philosophical methods and problems of current interest to members of the philosophy department. There will be no limit on enrollment for this course.

PPY 209—SPECIAL TOPICS. 3 to 5 credits
An occasional course offered according to the current interests of the faculty. Repeatable with change in content.

PPY 231—CONTEMPORARY MORAL ISSUES. 4 credits
An application of philosophical analysis to current moral issues.

PPY 309—SPECIAL TOPICS. 3 to 5 credits
An occasional course offered according to the current interests of the faculty. Repeatable with change in content.

PPY 311—HISTORY OF ANCIENT PHILOSOPHY. 5 credits
The history of philosophy from the Pre-Socratics to Plotinus.

PPY 312—HISTORY OF MEDIEVAL PHILOSOPHY. 5 credits
The history of philosophy from scholasticism through the Renaissance.

PPY 313—HISTORY OF MODERN PHILOSOPHY I. 5 credits
From Descartes to Kant.

PPY 314—HISTORY OF MODERN PHILOSOPHY II. 5 credits
German idealism and subsequent 19th Century developments.

PPY 321—BRITISH EMPIRICISM. 5 credits
A study of the works of Locke, Berkeley, and Hume.

PPY 325—SCHOPENHAUER, NIETZSCHE AND BERGSON: LEBENSPHILOSOPHIE. 5 credits
A study of the central works of the three great representatives of "Life Philosophy."

PPY 326—ANALYTIC PHILOSOPHY. 5 credits
Foundations of analytic and linguistic philosophy of the Twentieth Century.

PPY 327—MARX, DARWIN AND FREUD. 5 credits
The philosophy of man and of human history of the three revolutionary thinkers of modern times.

PPY 328—EXISTENTIALISM. 5 credits
An introductory study of the basic religious or philosophical writings of existentialist thinkers.

PPY 330—SYMBOLIC LOGIC. 5 credits
A systematic study of forms of deduction by the technique of truth-functional analysis and quantification.

PPY 334—PHILOSOPHY OF SCIENCE. 5 credits
A study of assumptions, methods and techniques of confirmation in the physical sciences.

PPY 336—PHILOSOPHY OF THE SOCIAL SCIENCES. 5 credits
A study of the assumptions, methods and techniques of confirmation in the social sciences.

PPY 350—ETHICS 5 credits
Analysis and Criticism of selected ethical systems and problems.

PPY 360—PHILOSOPHY OF HISTORY. 5 credits
A philosophical study of bases of historical fact, explanation, and description.

PPY 361—SOCIAL AND POLITICAL PHILOSOPHY. 5 credits
A study of the concept of social and political obligation and of man's relationship to social institutions.

PPY 363—MARX AND THE MARXISTS. 5 credits
A study of Marx and some leading Marxists.

PPY 365—DEMOCRATIC POLITICAL THEORY. 5 credits
A systematic consideration of the nature of democracy. (identical with PCL 465)

PPY 370—PHILOSOPHY OF ART. 5 credits
A philosophical examination of the arts.

PPY 380—PHILOSOPHY OF RELIGION. 5 credits
A philosophical examination of religious thought and experience.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

The courses numbers in the 500's are designed primarily for advanced undergraduates and graduate students. They are all available for graduate major credits, except for courses 500, 523, and 535. Undergraduates must have at least thirteen hours in philosophy and junior standing or permission of the instructor. Programs for all graduate degrees must include approved course work at the 600 level or above.

PPY 500—ADVANCED SYMBOLIC LOGIC. 5 credits*
Repeatable with change in content.

PPY 509—SPECIAL TOPICS. 3 to 5 credits*
An occasional course offered according to the current interests of the faculty. Repeatable with change in content.

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*Available for graduate major credit.

PPY 510—KANT. 5 credits*

PPY 511—STUDIES IN ANCIENT PHILOSOPHY. 5 credits
Repeatable with change in content.

PY 512—THE PRAGMATIC MOVEMENT. 5 credits*
A consideration of the extent to which the work of Peirce, James, Dewey, Mead and Lewis forms an organized philosophic position.

PPY 513—STUDIES IN MODERN PHILOSOPHY. 5 credits
Repeatable with change in content.

PPY 514—STUDIES IN NINETEENTH AND TWENTIETH CENTURY PHILOSOPHY. 5 credits
Repeatable with change in content.

PPY 515—PLATO. 5 credits*

PPY 516—ARISTOTLE. 5 credits*

PPY 518—STUDIES IN MEDIEVAL MOVEMENT. 5 credits
Repeatable with change in content.

PPY 520—SEMANTICS. 5 credits*
The recognition of major positions in the field and the selection and application of a theory of signs to chosen material from the humanities and the physical, biological, and social sciences.

PPY 521—THEORY OF VALUE. 5 credits*

PPY 530—PHILOSOPHY OF MATHEMATICS 5 credits*

PPY 533—STUDIES IN THE PHILOSOPHY OF SCIENCE. 5 credits*

PPY 535—COMPUTABILITY AND UNSOLABILITY. 5 credits
Prerequisite: PPY 330 or equivalent.

PPY 537—THE CONCEPT OF NECESSITY. 5 credits
Prerequisites: Three philosophy courses. Modern theories of a priori knowledge.

PY 541—STUDIES IN THEORY OF KNOWLEDGE. 5 credits
Repeatable with change in content.

PPY 542—METAPHYSICS. 5 credits
Repeatable with change in content.

PPY 544—EXISTENTIAL PHENOMENOLOGY. 5 credits
The theory and practice of phenomenology as a philosophical method.

PPY 546—STUDIES IN ANALYTIC PHILOSOPHY. 5 credits

PPY 562—STUDIES IN THEORY OF VALUE. 5 credits
Repeatable with change in content.

PPY 580—STUDIES IN THE PHILOSOPHY OF RELIGION. 5 credits
Repeatable with change in content.

PPY 590—INDIVIDUAL WORK, 1 to 5 credits
Prerequisite: Fourteen hours of work in philosophy and permission of the department. Repeatable with change in content.

PPY 595—HONORS SEMINAR. 3 to 5 credits
Permission of the Department required. Repeatable with change in content.

* Available for graduate major credit.

GRADUATE COURSES

PPY 601–SEMINAR IN HISTORY OF PHILOSOPHY.	5 credits
PPY 602–SEMINAR IN PROBLEMS OF VALUE.	5 credits
PPY 603–SEMINAR IN CONTEMPORARY PHILOSOPHY.	5 credits
PPY 604–SEMINAR IN PROBLEMS OF KNOWLEDGE.	5 credits
PPY 605–SEMINAR IN GENERAL THEORY OF SIGNS.	5 credits
PPY 606–SEMINAR IN AESTHETICS.	3 credits
PPY 609–SPECIAL TOPICS.	3 to 5 credits
PPY 610–MATHEMATICAL LOGIC.	5 credits
PPY 615–SEMINAR IN THE PHILOSOPHY OF MIND.	5 credits
PPY 632–COMPARATIVE SET THEORY.	4 credits
PPY 636–LOGICAL SYSTEMS 1.	5 credits
PPY 637–LOGICAL SYSTEMS 2.	5 credits
PPY 638–LOGICAL EMPIRICISM.	4 credits
PPY 639–PHILOSOPHY OF LOGIC.	5 credits
PPY 640–SEMINAR IN METAPHYSICS.	5 credits
PPY 656–SPECIAL STUDIES IN ETHICAL THEORIES.	5 credits
PPY 660–SEMINAR IN SOCIAL-POLITICAL PHILOSOPHY.	5 credits
PPY 690–INDIVIDUAL WORK.	1 to 5 credits
PPY 697–SUPERVISED RESEARCH.	1 to 5 credits
PPY 698–SUPERVISED TEACHING.	1 to 5 credits
PPY 699–MASTER'S RESEARCH.	1 to 15 credits

Physics

INSTRUCTIONAL STAFF 1969-70

Ballard, S. S., *Chairman;* Adams, E. D.; Allen, K. R.; Andrew, E. R.; Bailey, T. L.; Blue, R. A.; Broyles, A. A.; Carr, T. D.; Conklin, J. B., Jr.; Dunnam, F. E.; Flowers, J. W.; Garrett, R. E.; Green, A. E. S.; Hanson, H. P.; Hooper, C. F., Jr.; Isler, R. C.; Jones, W. B.; Kronsbein, J.; Lebo, G. R.; Löwdin, P-O.; Mayo, T. T.; Micha, D. A.; Öhrn, N. Y.; Omer, G. C.; Parkinson, M. T.; Pepinsky, R.; Peterson, L. R.; Prasad, S. S.; Purcell, J. E.; Rosenshein, J. S.; Sawyer, E. M.; Schrader, H. W.; Scott, T. A.; Slater, J. C.; Smith, A. G.; Stamper, J. H.; Swanson, D. C.; Teller, M. H.; Thomas, B. S.; Trickey, S. B.; Van Rinsvelt, H. A.; Weller, H. R.

Students planning on an undergraduate major in physics should consult the departmental major advisors, Dr. D. C. Swanson, Room 107, or Dr. E. M. Sawyer, Room 237, Williamson Hall. In preparation for this major program, the student should take the following courses in his freshman and sophomore years: MS 301-302-303-304-305, PS 215-216-217, 225-226-227, CY 211-212-213, GN or FH or RSN 133-134. The upper division program will be selected under the guidance of the major advisor. For additional information, see College of Arts and Sciences entrance requirements.

PS 120–ELEMENTS OF PHYSICS. 6 credits

Prerequisite: One year of high school algebra or equivalent. A terminal course presenting selected topics from all branches of physics. Primarily for non-science majors and students in the College of Health Related Professions. The presentation of the course will include lectures, demonstrations, recitation problem-solving sessions, and laboratory.

PS 211–GENERAL PHYSICS 1. 4 credits

The first part of the sequence PS 211-212-213, which includes mechanics, electricity, magnetism, heat, sound, light, and modern physics. Corequisites: MS 102 or equivalent and PS 221. Primarily for pre-professional students and other students not majoring in the physical sciences. See departmental advisors for additional information.

PS 212—GENERAL PHYSICS 2. 4 credits
Prerequisite: PS 211. Corequisite: PS 222. Continuation of the sequence.

PS 213—GENERAL PHYSICS 3. 4 credits
Prerequisite: PS 212. Corequisite: PS 223. Continuation of the sequence.

PS 215—GENERAL PHYSICS WITH CALCULUS 1. 3 credits
The first part of the sequence PS 215-216-217, which includes mechanics, electricity, magnetism, heat, sound, and light. Prerequisite: MS 301. Corequisites: MS 302 and PS 225. Primarily for students majoring in engineering or the physical sciences. See departmental advisors for additional information.

PS 216—GENERAL PHYSICS WITH CALCULUS 2. 3 credits
Prerequisite: PS 215. Corequisites: MS 303 and PS 226. Continuation of the sequence.

PS 217—GENERAL PHYSICS WITH CALCULUS 3. 3 credits
Prerequisite: PS 215. Corequisites: MS 303 and PS 227. Continuation of the sequence.

PS 221—LABORATORY FOR PHYSICS 211. 1 credit
Corequisite: PS 211.

PS 222—LABORATORY FOR PHYSICS 212. 1 credit
Corequisite: PS 212.

PS 223—LABORATORY FOR PHYSICS 213. 1 credit
Corequisite: PS 213.

PS 225—LABORATORY FOR PHYSICS 215. 1 credit
Corequisite: PS 215.

PS 226—LABORATORY FOR PHYSICS 216. 1 credit
Corequisite: PS 216.

PS 227—LABORATORY FOR PHYSICS 217. 1 credit
Corequisite: PS 217.

PS 300—MECHANICS 1. 3 credits
The first part of the sequence PS 300, 400, and 500. Prerequisites: One year of college physics and calculus. Introduction to vector mechanics; the dynamics of particles and systems of particles; introduction to the dynamics of rigid bodies.

PS 310—ELECTRICITY AND MAGNETISM 1. 3 credits
The first part of the sequence PS 310, 410, and 510. Prerequisites: One year of college physics and calculus. Electric and magnetic fields, Maxwell's equations. Vector methods are introduced and employed.

PS 330—OPTICS 1. 3 credits
The first part of the sequence PS 330 and 430. Prerequisites: One year of college physics and calculus. Lenses, optical instruments, interference, diffraction, dispersion, and polarization.

PS 340—MODERN PHYSICS 1. 3 credits
The first part of the sequence PS 340 and 440. Prerequisites: One year of college physics and calculus. Includes atomic physics, relativity, theory of the solid state, basic concepts of quantum mechanics.

PS 380—BASIC PHYSICS FOR TEACHERS—MECHANICS AND HEAT. 3 credits
The first part of the sequence PS 380, 381, and 382. Prerequisite: One year of high school algebra. Lectures, demonstrations, and laboratory when practicable, covering selected topics in mechanics, heat, sound, electricity, optics, and modern physics. Not available for undergraduate major credit.

PS 381—BASIC PHYSICS FOR TEACHERS—ELECTRICITY AND MODERN PHYSICS. 3 credits

The second part of the sequence PS 380, 381, and 382. Prerequisite: PS 380 or the equivalent. Not available for undergraduate major credit.

PS 382—BASIC PHYSICS FOR TEACHERS—WAVE MOTION, SOUND, AND OPTICS. 3 credits

The third part of the sequence PS 380, 381, and 382. Prerequisite: PS 380 or equivalent. Not available for undergraduate major credit.

PS 400—MECHANICS 2. 3 credits

The second part of the sequence PS 300, 400, and 500. Prerequisites: PS 300, elementary differential equations and vector algebra.

PS 410—ELECTRICITY AND MAGNETISM 2. 3 credits

The second part of the sequence PS 310, 410, and 510. Prerequisites: PS 310, elementary differential equations and vector algebra.

PS 415—ELECTRICAL MEASUREMENTS. 2 credits

Prerequisite: PS 310 or equivalent. Corequisite: PS 410. Laboratory experiments in electricity and magnetism.

PS 420—FUNDAMENTALS OF STATISTICAL PHYSICS 1. 3 credits

The first part of the sequence PS 420 and 520. Prerequisite: PS 340. Introduction to thermodynamics, statistical mechanics, and kinetic theory.

PS 430—OPTICS 2. 3 credits

The second part of the sequence PS 330 and 430. Prerequisites: PS 330, elementary differential equations and vector algebra.

PS 435—OPTICS LABORATORY. 2 credits

Prerequisite: PS 330. Corequisite: PS 430. Selected experiments in the refraction, dispersion, diffraction, and polarization of light.

PS 440—MODERN PHYSICS 2. 3 credits

The second part of the sequence PS 340 and 440. Prerequisite: PS 340.

PS 443—INTRODUCTION TO AERONOMY. 3 credits

Prerequisites: PS 340 and MS 305. The physical structure of the atmosphere. Discussion of statics, thermodynamics, hydrodynamics, and chemistry as applied to the atmosphere; treatment of the ionosphere and the aurora and airglow.

PS 445—ATOMIC AND MODERN PHYSICS LABORATORY. 2 credits

Prerequisite: PS 340 or equivalent. Selected experiments dealing with properties of electrons and atoms, the solid state, X-rays, cosmic rays, gaseous discharges, photoelectric and thermionic emission, and atomic radiations.

PS 460—NUCLEAR PHYSICS. 3 credits

Prerequisite: PS 440. Elementary treatment of nuclear phenomena, including nuclear properties, stability and radioactive decay, scattering and nuclear reactions, interaction of nuclear radiations with matter, and nuclear forces.

PS 465—LABORATORY TECHNIQUES IN NUCLEAR PHYSICS 1. 2 credits

The first part of the sequence PS 465 and 566. Corequisite: PS 460, or consent of instructor. Detection and energy measurement of particle and photon radiations. Determination of nuclear properties. Coincidence measurements, pulse-height analysis, and nuclear instrumentation. Nuclear reactions.

PS 480—PHYSICS FOR TEACHERS. 3 credits

Prerequisite: PS 382 or equivalent. A condensed course of lectures and demonstrations for secondary school science teachers, in which the fundamentals of classical physics are re-examined and correlated with contemporary concepts. Not available for undergraduate major credit.

PS 490—INDIVIDUAL WORK. 3 to 5 credits

Prerequisite: 18 credits of physics. Qualified undergraduate students may study selected topics in physics. May be repeated, with change of content, up to a total of 15 credits.

PS 491—INDIVIDUAL LABORATORY WORK. 1 credit

Prerequisite: 18 credits of physics. Qualified undergraduate students may pursue a special project in the laboratory. May be repeated, with change in content, up to a total of 4 credits.

PS 492—RESEARCH SEMINAR. 1 credit

Prerequisite: 18 credits of physics. PS 490 or PS 491 may be taken conjointly. Qualified undergraduates will take part in weekly seminars on research topics in physics, conducted by research faculty and the students themselves.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

PS 500—INTERMEDIATE DYNAMICS. 3 credits*

The third part of the sequence PS 300, 400, and 500. Prerequisites: PS 400, differential equations and vector analysis. An introduction to the equations of Lagrange and Hamilton; the motion of rigid bodies; the theory of small vibrations.

PS 510—ELECTRIC AND MAGNETIC FIELDS. 3 credits*

The third part of the sequence PS 310, 410, and 510. Prerequisites: PS 410, differential equations and vector analysis. Solutions to Maxwell's Equations, including selected topics relating to static and dynamic electric and magnetic fields, and an introduction to the emission and propagation of electromagnetic waves.

PS 515—ELECTRONICS 1. 3 credits*

The first part of the sequence PS 515 and 516. Prerequisite: PS 310 or equivalent. Class and laboratory. Experiments include: vacuum thermionic emission, gas and solid-state conduction, properties of amplifiers and related circuits.

PS 516—ELECTRONICS 2. 3 credits*

The second part of the sequence PS 515 and 516. Prerequisite: PS 515.

PS 520—FUNDAMENTALS OF STATISTICAL PHYSICS 2. 3 credits*

The second part of the sequence PS 420 and 520. Prerequisite: PS 420.

PS 530—CLASSICAL AND MODERN OPTICS. 3 credits*

Prerequisites: PS 410 and 430, or equivalents; differential equations and vector analysis. An advanced course in physical optics that includes such modern topics as coherence, lasers, holography, and non-linear optics.

PS 541—MODERN PHYSICS 3. 3 credits*

Prerequisites: PS 440 or equivalent; differential equations. Introduction to quantum mechanics, with emphasis on atomic structure.

PS 542—OPTICAL SPECTRA. 3 credits*

Prerequisite: PS 340 or equivalent. Vector models and spectra of atoms and diatomic molecules, continuous spectra. Applications of spectral intensities and line widths to the analysis of plasmas and stellar atmospheres.

PS 550—INTRODUCTORY SOLID STATE PHYSICS. 3 credits*

Prerequisite: PS 541. A general introduction to solid state physics for non-specialists. Crystal structure; thermal, electrical, and magnetic properties of solids.

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*Available for graduate major credit.

PS 560—NUCLEAR PHYSICS. 3 credits*

Prerequisite: PS 440. Static properties of nuclei, descriptive aspects of radioactivity and nuclear reactions, nuclear systematics, nuclear models, and nuclear forces.

PS 566—LABORATORY TECHNIQUES IN NUCLEAR PHYSICS 2. 2 credits*

The second part of the sequence PS 565 and 566. Prerequisite: PS 565.

PS 570—INTRODUCTION TO PARTICLE PHYSICS. 3 credits*

Particle states, conserved quantum numbers, invariance principles.

PS 590—INDIVIDUAL WORK. 3 to 5 credits*

Assigned reading program, special topics, or development of a special experimental problem. Work selected to meet needs and interests of individual student. May be repeated with change of content up to a maximum of 15 credits.

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* Available for graduate major credit.

GRADUATE COURSES

PS 601—CLASSICAL MECHANICS.	3 credits
PS 605—SPECIAL RELATIVITY.	3 credits
PS 606—GENERAL RELATIVITY.	2 credits
PS 611—ELECTROMAGNETIC THEORY 1.	3 credits
PS 612—ELECTROMAGNETIC THEORY 2.	3 credits
PS 621—STATISTICAL MECHANICS.	3 credits
PS 629—CHEMICAL PHYSICS.	3 credits
PS 633—RADIOPROPAGATION AND IONOSPHERIC PHYSICS 1.	3 credits
PS 634—RADIOPROPAGATION AND IONOSPHERIC PHYSICS 2.	3 credits
PS 636—PHYSICS OF PLANETARY ATMOSPHERES 1.	3 credits
PS 637—PHYSICS OF PLANETARY ATMOSPHERES 2.	3 credits
PS 638—PHYSICS OF PLANETARY ATMOSPHERES 3.	3 credits
PS 642—THEORY OF OPTICAL SPECTRA.	3 credits
PS 643—QUANTUM MECHANICS 1.	3 credits
PS 644—QUANTUM MECHANICS 2.	3 credits
PS 645—QUANTUM MECHANICS 3.	3 credits
PS 647—QUANTUM THEORY OF MATTER 1.	4 credits
PS 648—QUANTUM THEORY OF MATTER 2.	4 credits
PS 649—QUANTUM THEORY OF MATTER 3.	4 credits
PS 660—SEMINAR IN EXPERIMENTAL NUCLEAR PHYSICS.	1 credit
PS 661—THEORETICAL FOUNDATIONS OF NUCLEAR PHYSICS.	3 credits
PS 662—EXPERIMENTAL FOUNDATIONS OF NUCLEAR PHYSICS 1.	3 credits
PS 663—EXPERIMENTAL FOUNDATIONS OF NUCLEAR PHYSICS 2.	3 credits
PS 671—RELATIVISTIC QUANTUM MECHANICS.	3 credits
PS 672—QUANTUM ELECTRODYNAMICS.	3 credits
PS 680—SEMINAR IN MODERN PHYSICS.	1 credit
PS 681—COMPUTER METHODS IN PHYSICS.	3 credits
PS 682—LOW TEMPERATURE PHYSICS.	3 credits
PS 690—INDIVIDUAL WORK.	3 to 5 credits
PS 696—DEPARTMENTAL SEMINAR.	1 credit
PS 697—SUPERVISED RESEARCH.	1 to 5 credits
PS 698—SUPERVISED TEACHING.	1 to 5 credits
PS 699—MASTER'S RESEARCH.	1 to 15 credits
PS 703—ADVANCED CLASSICAL MECHANICS.	3 credits
PS 713—ADVANCED ELECTROMAGNETIC THEORY.	3 credits
PS 722—ADVANCED STATISTICAL MECHANICS 1.	3 credits
PS 723—ADVANCED STATISTICAL MECHANICS 2.	3 credits
PS 741—ATOMIC AND MOLECULAR COLLISIONS 1.	3 credits
PS 742—ATOMIC AND MOLECULAR COLLISIONS 2.	3 credits
PS 753—PHYSICS OF THE SOLID STATE 1.	3 credits
PS 754—PHYSICS OF THE SOLID STATE 2.	3 credits

PS 755—PHYSICS OF THE SOLID STATE 3. 3 credits
PS 756—THEORY OF ATOMIC AND MOLECULAR STRUCTURE 1. 3 credits
PS 757—THEORY OF ATOMIC AND MOLECULAR STRUCTURE 2. 3 credits
PS 764—THEORY OF NUCLEAR SPECTROSCOPY. 3 credits
PS 765—THEORETICAL MESON PHYSICS. 3 credits
PS 766—THEORETICAL MESON AND NUCLEAR PHYSICS. 3 credits
PS 767—ADVANCED TOPICS IN MESON AND NUCLEAR PHYSICS. 3 credits
PS 768—THEORY OF NUCLEAR SPECTROSCOPY AND NUCLEAR REACTIONS. 3 credits
PS 769—DIRECT REACTIONS AND NUCLEAR THEORY. 3 credits
PS 771—HIGH ENERGY THEORY 1. 3 credits
PS 772—HIGH ENERGY THEORY 2. 3 credits
PS 790—SPECIAL TOPICS. 3 credits. Maximum 18 credits
PS 799—DOCTORAL RESEARCH. 1 to 15 credits

Political Science

INSTRUCTIONAL STAFF 1969-70

Dauer, M. J., *Chairman;* Bartley, E. R.; Clubok, A. B.; Conradt, D. P.; Damico, A. J.; Freels, J. W.; Henderson, T. A.; Hoole, F. W.; Kammerer, G. M.; Legg, K. R.; Lemarchand, R.; McQuown, O. R.; Morrison, J. F.; Page, T. L.; Rosenbaum, W. A.; Spanier, J. W.; Suarez, A.; Sutton, R. L.; Svarlien, O.; Todd, J. R.

The department offers general courses in political science, and more specialized offerings in public administration, and international affairs and foreign service training.

Students majoring in political science are required to take PCL 201, American Federal Government; PCL 207, Introduction to Comparative Government; and PCL 209, International Relations, each course four quarter hours. A total of forty quarter hours is required for the major.

Graduate courses and seminars are offered leading to both M.A. and Ph.D. degrees. These courses are numbered in the 600 series and are open only to graduate students.

PCL 201—AMERICAN FEDERAL GOVERNMENT. 5 credits
Basic principles of the Federal Constitution. Civil Rights. Political parties and the electoral process. The structure and machinery of the federal government, including the Congress, President, and Judiciary.

PCL 203—ANALYSIS OF POLITICAL SCIENCE. 5 credits
Prerequisite: PCL 201 or concurrent registration in PCL 201. Political science as a discipline, its method and outlook. The nature of political science, government, the bases of political action, and political values.

PCL 207—INTRODUCTION TO COMPARATIVE GOVERNMENT. 5 credits
The classification of political systems according to institutional and developmental characteristics. Causes and costs of political stability and instability. Comparison will relate to contemporary political institutions and processes in specific countries.

PCL 209—INTERNATIONAL RELATIONS. 5 credits
The nature of international relations; nationalism, imperialism, militarism, armaments; history of international relations; foreign policies; functions and problems of democracy; international organization; the United Nations.

PCL 220—AMERICAN STATE AND LOCAL GOVERNMENT. 3 credits
State constitutions, political parties, and politics. State legislatures, courts, and chief executives. The functions of state governments. City and county government.

PCL 400—POLITICAL SCIENCE FOR TEACHERS. 5 credits

Special course for graduate students in College of Education. Designed for teachers who are in need of: (1) special topics; or (2) certain areas not covered in their general undergraduate work in the social sciences; or (3) needing additional work in certain fields. May be taken more than once when content is different.

PCL 401—AMERICAN CONSTITUTIONAL LAW. 3 credits

Prerequisite: PCL 201 and junior or senior standing. A complete study and analysis of the Federal Constitution, with study and briefing of leading cases in constitutional law.

PCL 402—AMERICAN CONSTITUTIONAL LAW. 3 credits

Prerequisites: PCL 201 and 401 and junior or senior standing. The second quarter of the course PCL 401-402-403.

PCL 403—AMERICAN CONSTITUTIONAL LAW. 3 credits

Prerequisites: PCL 201 and 402 and junior or senior standing. The third quarter of the course PCL 401-402-403.

PCL 404—INTERNATIONAL LAW. 3 credits

Prerequisite: PCL 201 and junior or senior standing. Study of the main principles of the Law of Nations; case study to illustrate its application; the World Court; the War Crimes trials; decisions in the United States involving questions of International Law.

PCL 405—INTERNATIONAL LAW. 3 credits

Prerequisites: PCL 201 and 404 and junior or senior standing. Second quarter of the course PCL 404-405-406.

PCL 406—INTERNATIONAL LAW. 3 credits

Prerequisites: PCL 201 and 405 and junior or senior standing. Third quarter of the course PCL 404-405-406.

PCL 407—HISTORY OF POLITICAL THEORY. 3 credits

Prerequisite: 6 hours of Political Science and junior or senior standing. Leading political theorists from Plato to the Conciliar Movement.

PCL 408—HISTORY OF POLITICAL THEORY. 3 credits

Prerequisite: 6 hours of Political Science. The second quarter of the course PCL 407-408-409. Leading political theorists from Machiavelli to Hegel.

PCL 409—HISTORY OF POLITICAL THEORY. 3 credits

Prerequisite: 6 hours of Political Science. The third quarter of the course PCL 407-408-409. Leading political theorists from Bentham to the present.

PCL 410—COMMUNISM: THEORY AND PRACTICE. 5 credits

Prerequisite: Junior or senior standing; PCL 207 or 209 recommended, but not required. Emphasis on the interrelationship of theory and practice in the evolution of Marxist-Leninist theory and developments in various communist political systems. The appeals of communism. Cadre training. The development of the international communist system.

PCL 411—PUBLIC ADMINISTRATION AND THE POLITICAL PROCESS. 5 credits

Prerequisite: PCL 201 and junior or senior standing. The role of administrative agencies in the formulation and implementation of public policy. Emphasis on the politics of administration. Problems in administrative management.

PCL 412—POLICY CONFLICT IN AMERICAN SOCIETY. 5 credits

Prerequisites: PCL 201, 203, plus junior or senior standing. Examples of policy conflict drawn from urbanism, poverty and other areas of national socio-economic policy. Consideration of policy alternatives. Peaceful against violent solutions and effects on groups.

PCL 419—BLACKS AND OTHER MINORITIES IN AMERICAN POLITICS. 5 credits

A comparative analysis of the political problems and objectives of various minority groups and the strategies used in an attempt to attain their goals.

PCL 450—SENIOR COLLOQUIUM. 5 credits

Special topics in Political Science on a coloquium basis for Seniors. Senior standing in Political Science and permission of instructor required.

PCL 456—SENIOR SEMINAR IN POLITICAL SCIENCE. 3 credits

Prerequisite: Senior major in department and permission of a departmental adviser. An analysis of the problems of conceptualization and research in the various areas of political science.

PCL 457—SENIOR SEMINAR IN POLITICAL SCIENCE. 3 credits

Prerequisite: PCL 456. Second quarter of PCL 456-457-458.

PCL 458—SENIOR SEMINAR IN POLITICAL SCIENCE. 3 credits

Prerequisite: PCL 457. Third quarter of PCL 456-457-458.

PCL 465—DEMOCRATIC POLITICAL THEORY. (Identical with PPY 365). 5 credits

Prerequisites: PPY 214 or PCL 201 and 203. Through study of various contemporary philosophers, the nature of democracy and reasons for favoring the democratic form of association will be considered.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

For undergraduates, upper division standing, including 12 hours of the social sciences, is necessary for admission to 500 courses, plus specific requirements in political science as indicated for the course.

A limited number of 500 courses may be taken for graduate major credit with approval of the student's graduate Supervisory Committee and the department head. Additional work in these courses is required of graduate students.

Not more than three of the 500 level courses (except for PCL 530) may be taken for graduate major credit; in addition PCL 530 is limited to 12 quarter credits.

PCL 505—GOVERNMENT OF THE SOVIET UNION AND EASTERN EUROPE. 5 credits*

Prerequisites: PCL 207 or 410 and junior, senior or graduate standing. A comparative analysis of the formal structures of government and political parties of the Soviet Union and Eastern Europe, the actual operation of their political systems, and the factors which have influenced their development.

PCL 506—EASTERN EUROPEAN COMMUNIST STATES. 5 credits*

Prerequisite: PCL 505 or PCL 410 and junior or senior or graduate standing. Comparative analysis of Communist parties and governmental systems of the Eastern European Communist governments.

PCL 507—BRITISH POLITICAL MODEL IN THE COMMONWEALTH. 5 credits*

Prerequisite: PCL 207 and junior, senior, or graduate standing. The government and politics of Great Britain and the Commonwealth of Nations. Special emphasis on historical, cultural, social, and economic determinants of current institutions and policies. Constitutions, parties, legislatures, executives, civil service systems, law, and local government.

*Available for graduate major credit.

PCL 508—MODES OF POLITICS IN WESTERN EUROPE. 5 credits*

Prerequisite: PCL 207 and junior, senior or graduate standing. A comparative analysis of the government and politics of the major western European countries. Special emphasis will be given to party systems and the social bases of politics in industrialized societies.

PCL 509—AMERICAN FOREIGN POLICY. 5 credits*

Prerequisite: PCL 209, junior, senior, or graduate standing. Policy formulation, the changing international political system and the U.S. role within it; significant current foreign policy issues confronting the nation.

PCL 511—SMALLER EUROPEAN STATES: GOVERNMENT AND POLITICS. 5 credits*

Prerequisite: PCL 201, PCL 207 and junior, senior, or graduate standing. Comparative analysis of smaller European states with emphasis on diverse patterns of economic, social and political development as determinants of current political structures and policies.

PCL 512—URBAN, SUBURBAN, AND METROPOLITAN GOVERNMENT. 5 credits*

Prerequisites: PCL 201. Emphasis on the problems of the growing town, city, and suburban areas. The Metropolis. Politics of local government. Problems in local government administration. Includes city, county, and regional governments.

PCL 514—PROBLEMS OF ADMINISTRATION AND POLICY. 5 credits*

Prerequisites: PCL 201 and 411 and junior, senior, or graduate standing. A treatment of the political-administrative dimensions of government planning, personnel, and finance.

PCL 517—LEGISLATION. 5 credits*

Prerequisite: PCL 201 and junior, senior, or graduate standing. The legislative process. Bicameralism vs. Unicameralism. Legislative qualifications. Legislative procedure. Lobbies and pressure groups.

PCL 518—POLITICAL OPINION. 5 credits*

Prerequisite: PCL 201, PCL 203, and junior, senior or graduate standing. Study of the definition and measurement of political opinion by polls and surveys, developmental character of opinion, variables in opinion formation, experiments in opinion measurement and the relation of political opinion to public policy.

PCL 520—POLITICAL PARTIES. 5 credits*

Prerequisite: PCL 201 and junior, senior, or graduate standing. The composition, organization, and structure of American political parties; and their role and relationships in the political process.

PCL 521—THE PRESIDENCY. 5 credits*

Prerequisite: PCL 201 and junior, senior, or graduate standing. The central role of the American Presidency in the political process. Emphasis on the contemporary institutional nature of that office and the behavior of its occupants.

PCL 522—GOVERNMENT IN THE FAR EAST. 5 credits*

Prerequisite: PCL 207 and junior, senior, or graduate standing. An analysis of the government and political process in China and Japan. Special emphasis on the historical, social, and economic determinants of current political institutions and political behavior.

PCL 524—COMPARATIVE FOREIGN POLICY. 5 credits*

Prerequisite: PCL 209 and junior, senior, or graduate standing. Analysis of contemporary problems in international relations; comparative international subsystems; and reinterpretation of such concepts as Nationalism and Imperialism; applied to case studies.

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*Available for graduate major credit.

PCL 526—GOVERNMENT AND POLITICS OF THE DEVELOPING COUNTRIES. 5 credits*

Prerequisite: PCL 207 and junior, senior, or graduate standing. Newly emerging areas of the world in Africa, Asia and the Middle East. Political and governmental problems of these areas.

PCL 527—INTERNATIONAL ORGANIZATIONS AND ADMINISTRATION POLICIES AND FUNCTIONS. 5 credits*

Prerequisites: PCL 209 or PCL 404-405-406 and junior, senior, or graduate standing. A study and analysis of the functional as well as the constitutional bases of international organization and administration; the greater stress being placed on the dynamics of functions in which the European Community serves as a special case for study.

PCL 528—AFRICAN GOVERNMENT AND POLITICS. 5 credits*

Prerequisites: PCL 207 and junior, senior, or graduate standing. African nationalism, political movements, and the study of governments in the African states.

PCL 530—INDIVIDUAL WORK. 5 credits*

Readings and discussion in advanced topics of political science. Open only to graduate students who need background work in certain areas of political science or open to use for special Departmental Senior course, provided course content is announced in advance.

PCL 540—INTERNATIONAL RELATIONS OF THE AMERICAN REPUBLICS. 5 credits*

Prerequisite: PCL 209 or advanced standing in Inter-American Studies. Major emphasis on the foreign policies of Latin American states *vis-a-vis* one another. Brief consideration of reciprocal relations of Latin-American republics with other powers.

PCL 541—GOVERNMENT AND POLITICS OF SOUTH AMERICA. 5 credits*

Prerequisite: PCL 207 and junior, senior, or graduate standing. The governmental and political practices of South American republics.

PCL 542—GOVERNMENT AND POLITICS OF THE CARIBBEAN COUNTRIES. 5 credits*

Prerequisite: PCL 207 and junior, senior, or graduate standing. The second half of the course PCL 541-542. The governmental and political practices of the Caribbean countries.

PCL 543—GOVERNMENT AND POLITICS OF BRAZIL. 5 credits*

Prerequisite: PCL 207 and junior, senior, or graduate standing. An analysis of the formal institutions and the political process in Brazil with special emphasis upon the historical, economic, and social factors which determine political behavior.

PCL 547—NATIONAL SECURITY AND DEFENSE POLICY. 5 credits*

Prerequisite: PCL 209 and junior, senior, or graduate standing. The revolution in post-war American strategy. U.S. and U.S.S.R. approaches to war, the impact of nuclear technology, deterrence, limited war, guerilla warfare, defense of Western Europe, nuclear proliferation, peace theory and the peace movement.

PCL 591—MASTERPIECES IN SOCIAL SCIENCES 1. (Identical with ES 591, HY 591 and SY 591). 4 credits*

Prerequisites: Senior standing and a major in one of the social sciences. For advanced students with background work in the social sciences who have approval of their major adviser and the course chairman. Reading of classics in economics, history, political science, sociology and cultural anthropology.

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*Available for graduate major credit.

PCL 592—MASTERPIECES IN SOCIAL SCIENCES 2. (Identical with ES 592, HY 592 and SY 592). 4 credits*

Prerequisites: Senior standing and a major in one of the social sciences. The second quarter of the course PCL 591-592-593.

PCL 593—MASTERPIECES IN SOCIAL SCIENCES 3. (Identical with ES 593, HY 593 and SY 593). 4 credits*

Prerequisites: Senior standing and a major in one of the social sciences. The third quarter of the course PCL 591-592-593.

*Available for graduate major credit.

GRADUATE COURSES

PCL 601—POLITICAL SCIENCE SCOPE AND METHOD. 5 credits
PCL 604—PUBLIC ADMINSTRATION PROBLEMS. 5 credits
PCL 605—PUBLIC ADMINSTRATION PROCEDURES. 5 credits
PCL 606—PUBLIC ADMINSTRATION INTERNSHIP. 5 credits
PCL 613—THE CONDUCT OF INQUIRY. 5 credits
PCL 614—POLITICAL BEHAVIOR: POLIMETRICS I. 5 credits
PCL 615—SURVEY RESEARCH. (Identical with SY 648). 5 credits
PCL 616—SEMINAR IN POLITICAL THEORY. 5 credits
PCL 617—SEMINAR IN POLITICAL THEORY. 5 credits
PCL 618—SEMINAR IN POLITICAL BEHAVIOR: POLIMETRICS II. 5 credits
PCL 619—HISTORY OF AMERICAN POLITICAL THEORY. 5 credits
PCL 620—LATIN AMERICAN POLITICAL THEORY. 5 credits
PCL 621—POLITICAL MODEL BUILDING. 5 credits
PCL 622—SEMINAR IN PUBLIC ADMINISTRATIVE BEHAVIOR. 5 credits
PCL 623—SEMINAR IN PUBLIC ADMINISTRATIVE BEHAVIOR. 5 credits
PCL 624—SEMINAR IN COMPARATIVE PUBLIC ADMINISTRATION. 5 credits
PCL 627—SEMINAR IN INTERNATIONAL RELATIONS AND ORGANIZATION 1. 5 credits
PCL 628—SEMINAR IN INTERNATIONAL RELATIONS AND ORGANIZATION 2. 5 credits
PCL 630—INDIVIDUAL WORK. 1 to 5 credits. Maximum 16 credits
PCL 639—SEMINAR IN PUBLIC LAW 1. 5 credits
PCL 640—SEMINAR IN PUBLIC LAW 2. 5 credits
PCL 643—SEMINAR IN INTERNATIONAL LAW 1. 5 credits
PCL 644—SEMINAR IN INTERNATIONAL LAW 2. 5 credits
PCL 650—SEMINAR IN GOVERNMENT AND THE PLANNING PROCESS. 5 credits
PCL 652—SEMINAR IN METROPOLITAN PROBLEMS. 5 credits
PCL 653—SEMINAR IN PROBLEMS OF AMERICAN FEDERAL GOVERNMENT. 5 credits
PCL 654—SEMINAR IN STATE GOVERNMENT AND POLITICS. 5 credits
PCL 655—SEMINAR IN POLITICAL PARTIES. 5 credits
PCL 660—SEMINAR IN COMPARATIVE GOVERNMENT 1. 5 credits
PCL 662—COMPARATIVE STUDIES IN WESTERN EUROPEAN POLITICAL SYSTEMS. 5 credits
PCL 664—SEMINAR IN FAR EASTERN GOVERNMENTS AND POLITICS. 5 credits
PCL 666—SEMINAR IN RUSSIAN AND EASTERN EUROPEAN GOVERNMENTS AND POLITICS. 5 credits
PCL 668—SEMINAR IN AFRICAN GOVERNMENTS AND POLITICS. 5 credits
PCL 670—SEMINAR IN LATIN AMERICAN GOVERNMENTS AND POLITICS 1. 5 credits
PCL 672—SEMINAR IN LATIN AMERICAN GOVERNMENTS AND POLITICS 2. 5 credits
PCL 674—SEMINAR IN BRAZILIAN GOVERNMENT AND POLITICS. 5 credits
PCL 697—SUPERVISED RESEARCH. 1 to 5 credits
PCL 698—SUPERVISED TEACHING. 1 to 5 credits
PCL 699—MASTER'S RESEARCH. 1 to 15 credits
PCL 799—DOCTORAL RESEARCH. 1 to 15 credits

Psychology

INSTRUCTIONAL STAFF 1969-70

Pennypacker, H. S., *Acting Chairman;* Anderson, R. J.; Carey, M.; Dewsbury, D. A.; Dixon, J. C.; Epting, F. R.; Graham, R. B.; Horne, E. P.; Isaacson, R. L.; Jourard, S. M.; Levy, C. M.; Malagodi, E. F.; Margulis, S. T.; Mascaro, G. F.; Mottola, W.; Schumacher, A.; Shaw, M. E.; Silverman, I.; Van De Riet, H.; Webb, W. B.; Willis, R. D.

An undergraduate major must include PSY 201, PSY 301, PSY 302 and STA 320. If graduate work in Psychology is planned both PSY 302 and 401 should be taken.

PSY 201—GENERAL PSYCHOLOGY. 4 credits

Introductory course designed to provide an understanding of human behavior through an intensive consideration of Psychological Measurement, Perception, Learning, Memory, Motivation, Emotion, Psychological Testing, Personality, and professions and specialized areas in Psychology. In order to provide greater depth to the course, all students are required to participate in research projects (or in *prescribed* alternative equivalent experience).

PSY 203—APPLIED GENERAL PSYCHOLOGY. 1 credit

Corequisite: PSY 201. Lectures and discussion on the application of psychology to such fields as Medicine, Health Related Services, Industry, Engineering and others. Lectures to be given by practicing applied psychologists.

PSY 300—PERSONALITY DEVELOPMENT. 3 credits

Lectures and readings leading toward a more explicit view of human potentialities for health, full functioning, growth and creativity. Attention is devoted to factors in the attainment of basic need-gratification, healthy self-structure, capacity for interpersonal dialogue, and increased sensitivity to self and others. In order to provide greater depth to the course, all students are required to participate in research projects (or in *prescribed* alternative equivalent experience).

PSY 301—EXPERIMENTAL PSYCHOLOGY 1. 5 credits

Prerequisite: PSY 201. The basic principles of scientific experimentation. Psychophysical methods, counterbalancing, introduction to research design, random groups and matched groups experiments.

PSY 302—EXPERIMENTAL PSYCHOLOGY 2. 4 credits

Pre or Corequisite: PSY 301. Introduction to the methods and principles of behavioral control as related to learning, motivation, discrimination and generalization.

PSY 306—SOCIAL PSYCHOLOGY. 4 credits

Prerequisite: PSY 201. A study of the social factors influencing individual behavior. Consideration of socialization, social influence and conformity, social interaction, decision-making, attitudes and opinions, and related topics. (Not open to graduate students in psychology).

PSY 307—DEVELOPMENTAL PSYCHOLOGY 1. 4 credits

Prerequisite: PSY 201 and STA 320. An interpretation of research on behavior origins, genetic contributions to unlearned development, determination of capability. e.g. sensory, perceptual, motor, symbolic, emotional and personal processes.

PSY 308—DEVELOPMENTAL PSYCHOLOGY 2. 4 credits

Prerequisite: PSY 201. Phylogenetic development and behavior. Comparison of behavior in some representative species by field and laboratory study.

PSY 309—PSYCHOLOGY OF PERSONALITY. 5 credits

Prerequisite: PSY 201. Development and organization of personality, description and assessment methods, results of research in dynamics.

PSY 312—PSYCHOLOGY OF EXCEPTIONAL CHILDREN. 4 credits
Prerequisites: PSY 201 or 309. Individual differences, intelligence, feeble-mindedness, dull and neurological disorders, conduct problems, social and emotional maladjustments, and backward children, superior and gifted children, speech and motor defects, sensory and other topics concerning exceptional and mentally unusual children.

PSY 324—PERCEPTION AND HUMAN SENSES. 4 credits
Prerequisite: PSY 201. An introductory survey of the knowledge of human senses and their place in perception. Factors influencing perception and perceptual processes will be considered.

PSY 401—LABORATORY TOPICS IN EXPERIMENTAL PSYCHOLOGY. 4 credits
Prerequisite: PSY 201, PSY 301, PSY 302, STA 320. Experimental studies of sensory and perceptual processes, human and animal learning.

PSY 406—THE PSYCHOLOGY OF INTERPERSONAL RELATIONS. 4 credits
Prerequisite: PSY 306. A consideration of the behavior of individuals as influenced by other individuals and by the relations among individuals.

PSY 407—CHILD PSYCHOLOGY. 3 credits
Prerequisites: PSY 201 and PSY 309 A survey of theory and research on growth and behavior from infancy through adolescence. Emphasis will be placed on how intellectual, social, and emotional behavior are learned.

PSY 410—BEHAVIOR DISORDERS. 5 credits
Prerequisites: PSY 201 and 309. A study of the nature and varieties of behavioral disturbances with emphasis on how disordered ways of behaving are learned.

PSY 411—QUANTITATIVE METHODS IN PSYCHOLOGY. 4 credits
Prerequisites: PSY 201, STA 320. Psychological measurement. Quantitative properties of psychological variables. Methods of collecting, analyzing and interpreting psychological data.

PSY 416—PSYCHOBIOLOGY. 4 credits
Prerequisite: PSY 201. An introductory survey of the concepts, data and methodology of comparative and physiological psychology. Three lectures and one laboratory demonstration per week.

PSY 421—AN INTRODUCTION TO LEARNING. 5 credits
Prerequisite: PSY 201. An introductory survey of the significant concepts, experimental methods, and principles of learning and forgetting.

PSY 430—INDIVIDUAL WORK 1 to 5 credits. Maximum 15 credits
Prerequisite: At least eighteen quarter hours of psychology including PSY 201, 301, 302. Qualified students and the instructor concerned may choose a particular problem for investigation or study from the various areas of experimental psychology. A formal written report of the work is required of the student.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

PSY 501—ADVANCED GENERAL PSYCHOLOGY. 4 credits*
Prerequisite: Eighteen quarter hours of psychology. Consideration of the roles and functions of the specializations of Psychology in contemporary society together with the historical sources and methodological techniques associated with these aspects of psychology.

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*Available for graduate major credit.

PSY 503—ESSENTIALS OF PSYCHOLOGICAL TESTING 1. 4 credits*

Prerequisite: STA 320. The psychological test as a means of assessing behavior. Principles and procedures in the interpretation and evaluation of tests.

PSY 504—ESSENTIALS OF PSYCHOLOGICAL TESTING 2. 4 credits*

Prerequisite: PSY 503. Tests of general and special abilities; personality and interest inventories; selection and classification tests.

PSY 506—THEORIES IN SOCIAL PSYCHOLOGY. 3 credits*

Prerequisite: PSY 406. Consideration of modern theories in social psychology in relation to experimental evidence.

PSY 507—BASIC COMPARATIVE PSYCHOLOGY. 4 credits*

Prerequisite: PSY 301, 302 or consent of instructor. Survey of the concepts of and approaches to the study of animal behavior from the standpoint of the psychologist

PSY 508—LABORATORY TOPICS IN ANIMAL BEHAVIOR. 4 credits*

Prerequisite: PSY 507 or consent of instructor. An introduction to laboratory techniques used in the study of a variety of behavior patterns in a variety of species.

PSY 509—CURRENT THEORIES OF PERSONALITY. 4 credits*

Prerequisite: PSY 309, 410. Issues and problems in description, development and organization of personality.

PSY 512—INDIVIDUAL AND GROUP DIFFERENCES. 4 credits*

Prerequisite: PSY 201. An intensive study of individual and group differences essential to the evaluation of test results and vocational/educational adjustment. The influence of differences in intelligence, age, sex, and ethnic and cultural background on behavior.

PSY 514—HISTORY OF PSYCHOLOGY. 5 credits*

Prerequisite: Twenty quarter hours of psychology. A survey of the history of psychology from the time of the Greeks to the present, covering its background in philosophy, the emergence of psychology as a modern, experimental science, and the contributions of movements such as structuralism, functionalism, behaviorism, and Gestalt psychology.

PSY 516—PHYSIOLOGICAL PSYCHOLOGY. 3 credits*

Prerequisite: PSY 201, ZY 575 or equivalent. The biological bases of behavior and structural and functional correlates of learning, motivation, emotion.

PSY 517—LABORATORY TOPICS IN PHYSIOLOGICAL PSYCHOLOGY. 4 credits*

Prerequisite: PSY 516 or equivalent and consent of instructor. Laboratory training in basic experimental techniques and procedures used in physiological psychology.

PSY 520—EXPERIMENTAL ANALYSIS OF BEHAVIOR I. 4 credits*

Prerequisite: PSY 301 or PSY 302 and consent of instructor. Introduction to principles of behavioral analysis, contemporary theory, experimental studies, and research tactics. Laboratory work required for graduate students; optional for undergraduates.

PSY 521—HUMAN LEARNING. 4 credits*

Prerequisite: PSY 421 and appropriate standing. An intensive study of human learning and retention with special emphasis on verbal, motor, concept, and probability learning; perceptual, short term and long term memory; and verbal conditioning.

PSY 525—MOTIVATION. 4 credits*

Prerequisite: PSY 301, 302 or consent of instructor. A development of the varying problems in the field of motivation as approached in the different areas of psychology.

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*Available for graduate major credit.

PSY 550—COGNITIVE PROCESSES. 4 credits*

Prerequisite: Eighteen quarter hours of psychology. The relationships of cognitive processes to Perception, Learning, and Memory, Motivation, and Development. Emphasis on contemporary theories of cognition and experimental methods involved in the study of cognitive processes.

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*Available for graduate major credit.

GRADUATE COURSES

PSY 600—PROSEMINAR 1: LITERATURE IN EXPERIMENTAL PSYCHOLOGY. 3 to 6 credits
PSY 601—PROSEMINAR 2: LITERATURE IN EXPERIMENTAL PSYCHOLOGY. 3 to 6 credits
PSY 602—PROSEMINAR 3: LITERATURE IN EXPERIMENTAL PSYCHOLOGY. 3 to 6 credits
PSY 603—PSYCHOMETRIC METHODS. 3 credits
PSY 604—STATISTICAL METHODS IN PSYCHOLOGY: INFERENCE. 3 credits
PSY 605—STATISTICAL METHODS IN PSYCHOLOGY: CORRELATION. 3 credits
PSY 607—ADVANCED COMPARATIVE PSYCHOLOGY 1. 3 credits Maximum 9 credits
PSY 608—ADVANCED COMPARATIVE PSYCHOLOGY 2. 3 credits Maximum 9 credits
PSY 609—SEMINAR IN PERSONALITY. 4 credits Maximum 12 credits
PSY 610—SEMINAR IN PSYCHOPATHOLOGY. 4 credits
PSY 611—ADVANCED SOCIAL PSYCHOLOGY 1. 4 credits
PSY 612—ADVANCED SOCIAL PSYCHOLOGY 2. 3 credits
PSY 613—CHILDREN'S BEHAVIOR DISTURBANCES. 4 credits
PSY 614—DEVELOPMENT AND APPRAISAL OF VOCATIONAL CHOICE. 4 credits
PSY 616—SEMINAR: SOCIAL PSYCHOLOGY. 4 credits. Maximum 15 credits
PSY 617—LABORATORY IN SOCIAL PSYCHOLOGY 1. 4 credits
PSY 618—LABORATORY IN SOCIAL PSYCHOLOGY 2. 3 credits
PSY 619—ADVANCED EXPERIMENTAL PSYCHOLOGY 4 credits
PSY 620—EXPERIMENTAL ANALYSIS OF BEHAVIOR II. 4 credits
PSY 621—SEMINAR: LEARNING. 4 credits
PSY 622—SEMINAR: EXPERIMENTAL PSYCHOLOGY. 1 to 5 credits Maximum 15 credits
PSY 624—SEMINAR: PERCEPTION. 4 credits
PSY 626—SEMINAR: EXPERIMENTAL DESIGN. 4 credits
PSY 627—ADVANCED PHYSIOLOGICAL PSYCHOLOGY. 2 credits Maximum 15 credits
PSY 628—SEMINAR: SENSORY PROCESS. 4 credits Maximum 8 credits
PSY 629—SEMINAR IN VISION. 4 credits
PSY 630—INDIVIDUAL WORK. 1 to 5 credits. Maximum 15 credits
PSY 631—RESEARCH METHODS IN SOCIAL PSYCHOLOGY. 4 credits Maximum 15 credits
PSY 632—TEST CONSTRUCTION. 4 credits
PSY 637—PERSONAL COUNSELING. 4 credits
PSY 641—PERSONALITY ASSESSMENT 1. 4 credits
PSY 642—PERSONALITY ASSESSMENT 2. 4 credits
PSY 643—PERSONALITY ASSESSMENT 3. 4 credits
PSY 644—PERSONALITY ASSESSMENT 4. 4 credits
PSY 650—RESEARCH METHODS IN PERSONALITY. 3 credits
PSY 651—PRACTICUM IN PROFESSIONAL PSYCHOLOGY. 5 credits Maximum 20 credits
PSY 661—SEMINAR: DEVELOPMENTAL PSYCHOLOGY. 4 credits

PSY 669—SEMINAR: MOTIVATION 1. 4 credits
PSY 670—SEMINAR: MOTIVATION 2. 2 credits
PSY 680—SEMINAR IN DEVELOPMENTAL PSYCHOLOGY: COGNITIVE PROCESSES. 4 credits
PSY 692—PSYCHOPHYSIOLOGY OF HEARING. 5 credits
PSY 697—SUPERVISED RESEARCH. 1 to 5 credits
PSY 698—SUPERVISED TEACHING. 1 to 5 credits
PSY 699—MASTER'S RESEARCH. 1 to 15 credits
PSY 714—CONTEMPORARY SYSTEMS IN PSYCHOLOGY. 4 credits
PSY 720—ADVANCED SEMINAR: EXPERIMENTAL ANALYSIS OF BEHAVIOR. 4 credits
PSY 726—ADVANCED PSYCHOMETRIC METHODS. 3 credits
PSY 734—SEMINAR: CURRENT CLINICAL LITERATURE. 4 credits Maximum 12 credits
PSY 735— ISSUES IN PSYCHOLOGICAL TREATMENT. 4 credits Maximum 8 credits
PSY 736—SEMINAR: THEORY AND RESEARCH METHODS IN COMMUNITY PSYCHOLOGY. 4 credits
PSY 737—THEORY AND PRACTICE OF PSYCHOLOGICAL CONSULTATION. 4 credits
PSY 738—SEMINAR: ADVANCED RESEARCH METHODS IN COMMUNITY PSYCHOLOGY. 4 credits
PSY 743—PSYCHODIAGNOSTIC APPRAISAL AND ASSESSMENT. 4 credits
PSY 755—INTERNSHIP. 5 credits. Maximum 15 credits
PSY 799—DOCTORAL RESEARCH. 1 to 15 credits

Religion

INSTRUCTIONAL STAFF 1969-70

Scudder, D. L., *Chairman;* Banks, S. A.; Carnell, C. S.; Creel, A. B.; Gannon, M. V.; Hiers, R. H.; Mesch, B.; Smylie, R. F.; Springfield, W. T.; Stahmer, H. M.

Thirty six to forty eight quarter credits are required for the major. Students interested in the relation of religion to other disciplines may satisfy some of the major requirements by taking appropriate courses in certain other departments, e.g., Anthropology, History, Philosophy, Sociology, with the consent of the Religion Department adviser. Majors are urged to take at least one course in each of the four introductory areas.

Students electing courses in Religion are advised to begin at the 300 level before proceeding to more advanced work, unless otherwise adequately prepared.

Certification requirements for secondary school teaching in religion may be met through a major in English and a minor in religion. See the announcement in the College of Education section of this catalogue, or consult the Department.

Graduate minors should be worked out with the respective department advisers.

INTRODUCTORY AREAS

COMPARATIVE RELIGION

The literature, history and religion of the Bible from the standpoint of critical research.

RN 321—COMPARATIVE RELIGION 1. 4 credits
Hinduism and Islam.

RN 322—COMPARATIVE RELIGION 2. 4 credits
Buddhism and Chinese-Japanese Religious Thought.

RN 323—COMPARATIVE RELIGION 3. 4 credits
Judaism and Christianity.

BIBLICAL

The literature, history and religion of the Bible from the standpoint of critical research.

RN 341—OLD TESTAMENT. 5 credits

An inquiry into the history, literature, and beliefs of the Hebrews as reflected in the Old Testament, in the light of modern scholarship.

RN 343—NEW TESTAMENT 1. 3 credits

The Historical Jesus based on the first Three Gospels.

RN 344—NEW TESTAMENT 2. 3 credits

The life and thought of Paul together with the later writings of the Christian Community.

HISTORICAL

The development of Judaism and Christianity.

RN 351—HISTORY OF THE JEWISH PEOPLE. 4 credits

A survey of Jewish history from post-Biblical to modern times.

RN 353—HISTORY OF CHRISTIANITY. 4 credits

A survey of history of Christianity from ancient to modern time, with emphasis on pivotal personalities.

RN 357—AMERICAN RELIGIOUS HISTORY, 1565-1860. 4 credits

A presentation of the historical development of major religious groups in the United States from colonial period to Civil War.

RN 358—AMERICAN RELIGIOUS HISTORY, 1860 TO DATE. 4 credits

The history of major theological and institutional changes among Protestants, Catholics, Jews from Civil War to date.

CULTURAL AND SOCIAL

Contemporary, secular and religious thought, ideologies and institutions.

RN 364—CONTEMPORARY RELIGIOUS THOUGHT 4 credits

An attempt to discover what contemporary thinkers are saying about religion and the problems of modern life.

RN 365—THEOLOGY AND THE ARTS SINCE 1940. 5 credits

Prerequisite: CHN 251-252-253. An exploration of the theological assumptions and the artistic means employed by recent dramatists, novelists, and film directors whose ultimate concerns take on religious import.

RN 371—RELIGION AND ETHICS. 4 credits

Prerequisite: Upper Division standing. A study of the moral implications of belief systems developed in the writings of various major theologians.

RN 373—RELIGION AND SOCIETY. 5 credits

The interaction of religion and social institutions, concerning the ways religious groups influence and are influenced by the sociocultural environment.

RN 375—RELIGION AND COMMUNISM. 3 credits

An analysis of the character and challenge of Communism to the religions of the world. An exploration of the ideological conflict between dialectical materialism and the non-material interpretations of reality.

SPECIAL STUDIES

Investigations of special areas of interest and concern.

RN 380—PHILOSOPHY OF RELIGION. 5 credits

Identical with PPY 380. A philosophical examination of religious thought and experience.

RN 401—SEMINAR IN COMPARATIVE RELIGION. 5 credits

A study of the Bhagavad-Gita, the Dhammapada, the Gospel of John, the Tao Teh King, and the Prophecy of Isaiah.

RN 405—THE PROBLEMS OF RELIGIOUS PHILOSOPHY. 4 credits

An examination of the problems of man, God, evil, freedom, values and immortality. Attention is given to the relations of common sense, science, philosophy and religion.

RN 407—MEDIEVAL CHRISTIAN THOUGHT. 4 credits

A study of the philosophical theologians from Anselm to William of Ockham, emphasis on Thomas Aquinas.

RN 408—RELIGIOUS FOUNDATIONS OF COUNSELING. 4 credits

Prerequisite: Consent of Instructor. An examination of the religious and ethical understandings of man underlying counseling techniques.

RN 410—PRIMITIVE RELIGION. 4 credits

Identical with APY 320. Cross cultural survey of beliefs and practices dealing with the supernatural. Magic and Religion. Conceptualization of the supernatural. Sacred specialists, their functions and social position. Theories of comparative religion in the light of primitive data.

RN 425—SOCIOLOGY OF RELIGION. 4 credits

Identical with SY 425. Prerequisite: SY 201. A general study of the sociological approaches to religious phenomena; their structural and functional dimensions, and their relations with the larger society.

RN 430—INDIVIDUAL WORK. 1 to 5 credits

Prerequisite: 12 hours of religion or consent of department. Majors or other advanced undergraduates who wish to supplement regular course work by individual studies under guidance. May be repeated with change of content up to a maximum of 15 credits.

RN 450—RELIGIOUS INTERPRETATIONS OF HISTORY. 4 credits

Prerequisite: 12 hours of Upper Division Humanities including History. Recent views of Northrup, Toynbee, Sorokin, and Niebuhr analyzed in the light of Asiatic and other Western conceptions.

RN 485—TRADITIONAL INDIA. 3 credits

Identical with HY 485. An introduction to the civilization of India prior to the impact of the West with consideration of the religious dimension of Indian culture.

RN 486—CONTEMPORARY INDIA. 3 credits

Identical with HY 486. Prerequisite: RN 321 or RN 485-HY 485. An examination of selected aspects of 19th and 20th century India, with particular attention to religious and social developments since the impact of the West.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

RN 501—SPECIAL STUDIES IN WORLD RELIGIONS. 4 credits

Prerequisite: Permission of the Instructor. May be repeated with change of content up to a maximum of 12 credits.

RN 513—MEDIEVAL JEWISH THOUGHT. 4 credits

Prerequisite: Permission of the Instructor. The thought of the major figures of medieval Jewish philosophy including Saadya, Halevi, Maimonides, Crescas and others. The development of Jewish mysticism during this period.

RN 557—SEMINAR ON THEOLOGY AND CONTEMPORARY LITERATURE. 5 credits

Prerequisite: RN 364 or 365 or permission of the Instructor. Selected topics in fiction, poetry, and drama studied from the theology-of-culture standpoint; the values and meanings implicit and affirmed in 20th century literature.

RN 562—CULTURAL AND INTELLECTUAL HISTORY OF AMERICAN RELIGION. 4 credits

Theological, literary, architectural, and artistic contributions of major religious groups to American life, colonial period to date.

RN 571—HISTORY OF MORAL THEOLOGY IN THE WEST. 4 credits

The conceptions of moral life represented in the Biblical traditions, major early Christian and Talmudic figures, and the medieval, reformation, and modern periods.

RN 573—SPECIAL TOPICS IN RELIGION AND SOCIETY. 4 credits

Prerequisite: RN 373, 425, or permission of Instructor. Advanced study of specific topics dealing with the interaction of religious and social institutions, e.g., Church and State, Religion and World Affairs, Religion and Economic Life, Religion and Education. May be repeated with change of content up to a maximum of 12 credits.

RN 577—PERSONALITY THEORY AND RELIGIOUS UNDERSTANDINGS OF MAN. 4 credits

Prerequisite: Consent of the Instructor. Major themes significant to the study of human personality, together with a comparative analysis of the perspectives of representative psychologists, social scientists and contemporary theologians concerning these themes.

Romance Languages and Literatures

INSTRUCTIONAL STAFF 1969-70

Conner, J. W., *Chairman;* Abraham, C. K.; Allen, J. J.; Bonneville, D. A.; Brown, F. S.; Casagrande, J.; Diamond, K.; Diller, G. T.; Gay-Crosier, R.; Gerard, D.; Hayes, F. C.; Hodges, L.; Hower, A.; Ibarra, F.; Lasley, M. M.; Marinetti, E. C. McCune, J. H.; Petersen, G. W.; Preto-Rodas, R.; Ramirez, A.; Robinson, C. B.; Rosen, L. M.; Saciuk, B.; Smith, A. B.; Wallace, M. J.; Wershow, I. R.

An undergraduate major is offered in French and Spanish. The major consists of 36 quarter hours above the second-year college level, plus a subsidiary requirement of FLE 301 or FLE 351. Students intending to major in a foreign language should consult a departmental adviser at the earliest opportunity.

Students who plan to continue the study of a language which they began in high school or another college are required to take a placement test before registering.

Foreign Language

FLE 230—INDIVIDUAL WORK IN FOREIGN LANGUAGES. 3 to 5 credits

Prerequisite: Permission of the department.

FLE 301—INTRODUCTION TO LINGUISTICS. 4 credits

Emphasis on descriptive linguistics.

FLE 302—INTRODUCTION TO AFRICAN LINGUISTICS. 4 credits
Prerequisite: FLE 301 or equivalent. A linguistic survey of sub-Saharan African languages.

FLE 351—COMPARATIVE STUDY OF FOREIGN LANGUAGES. 4 credits
Emphasis on historical linguistics.

FLE 530—INDIVIDUAL WORK. 3 to 5 credits
Prerequisite: Permission of the department.

FLE 585—FOREIGN LANGUAGES IN THE SECONDARY SCHOOL. 4 credits
(Identical with EDS 585).

Problems of language learning in high school and junior college. Historic methods. Newer methods, including use of audio-visual materials.

GRADUATE COURSES

FLE 619—INTRODUCTION TO ROMANCE LINGUISTICS. 5 credits

FLE 625—MEDIEVAL ROMANCE LYRIC POETRY. 5 credits

French

FH 133—FIRST-YEAR FRENCH. 5 credits

FH 134—FIRST-YEAR FRENCH 5 credits
Prerequisite: FH 133 (grade of C or better), or the equivalent.

FH 201—SECOND-YEAR FRENCH. 4 credits
Prerequisite: FH 134 (grade of C or better), or the equivalent.

FH 202—SECOND-YEAR FRENCH. 4 credits
Prerequisite: FH 201, or the equivalent.

FH 204—ORAL PRACTICE IN FRENCH. 4 credits
Prerequisite: FH 202, or the equivalent.

FH 305—GRAMMAR AND COMPOSITION 1. 4 credits
Prerequisite: FH 202, or the equivalent.

FH 306—GRAMMAR AND COMPOSITION 2. 4 credits
Prerequisite: FH 305, or the equivalent.

FH 327—INTRODUCTION TO FRENCH LITERATURE I. 3 credits
Prerequisite: FH 202, or the equivalent. Study of representative texts from the Middle Ages to the Classical period.

FH 328—INTRODUCTION TO FRENCH LITERATURE 2. 3 credits
Prerequisite: FH 202, or the equivalent. Study of representative texts from the Classical period to the Romantics.

FH 329—INTRODUCTION TO FRENCH LITERATURE 3. 3 credits
Prerequisite: FH 202, or the equivalent. Study of representative texts from the Romantics to the present day.

FH 330—FRENCH CIVILIZATION. 4 credits
Prerequisite: FH 202, or the equivalent. Introduction to French culture, with emphasis on contemporary institutions.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

FH 504—FRENCH PHONETICS. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent.

FH 505—ADVANCED FRENCH COMPOSITION. 5 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent.

FH 506—THE STRUCTURE OF FRENCH. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent.

FH 512—HISTORY OF THE FRENCH LANGUAGE. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent.

FH 517—FRENCH MEDIEVAL LITERATURE. 4 credits*
Prerequisites: FH 305-306 and FH 327-329, or the equivalent.

FH 519—SIXTEENTH-CENTURY FRENCH LITERATURE. 4 credits*
Prerequisites: FH 305-306 and FH 327-329, or the equivalent.
Study of literary and intellectual currents of the period. Selected readings from Marot, Scève, Du Bellay, Ronsard, D'Aubigné, Rabelais, Marguerite de Navarre, Montaigne.

FH 521—SEVENTEENTH-CENTURY FRENCH PROSE. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent.

FH 523—SEVENTEENTH-CENTURY FRENCH DRAMA. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent.

FH 530—THE PHILOSOPHIC MOVEMENT. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent. Readings from representative authors of the eighteenth-century, particularly Voltaire, Diderot, and Rousseau.

FH 531—THE NOVEL OF THE 18TH CENTURY. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent.

FH 542—THE ROMANTIC PERIOD. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent. Study of representative texts, with emphasis on work of Lamartine, Vigny, Hugo, and Musset.

FH 545—REALISM AND NATURALISM. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent. Emphasis on the novel and its development from Stendhal to Zola.

FH 550—MODERN FRENCH POETRY. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent. The development of French poetry from Baudelaire to the present.

FH 560—TWENTIETH-CENTURY FRENCH LITERATURE. 4 credits*
Prerequisites: FH 304-306 and FH 327-329, or the equivalent.

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*Available for graduate major credit.

GRADUATE COURSES

FH 600—SPECIAL STUDY IN FRENCH LITERATURE.
5 credits. Maximum 15 credits
FH 602—BEGINNING FRENCH FOR GRADUATE STUDENTS 1. 4 credits
FH 603—BEGINNING FRENCH FOR GRADUATE STUDENTS 2. 4 credits

FH 605–INDIVIDUAL WORK 2 to 5 credits. Maximum 15 credits
FH 610–INTRODUCTION TO GRADUATE STUDY AND RESEARCH. 5 credits
FH 615–LITERARY CRITICISM IN FRANCE. 5 credits
FH 618–OLD FRENCH LITERATURE 1. 5 credits
FH 619–OLD FRENCH LITERATURE 2. 5 credits
FH 620–FRENCH POETRY OF THE RENAISSANCE. 5 credits
FH 621–FRENCH PROSE OF THE RENAISSANCE. 5 credits
FH 641–BAROQUE AND PRECLASSICISM. 5 credits
FH 645–FRENCH CLASSICAL COMEDY. 5 credits
FH 660–THE FRENCH SYMBOLIST MOVEMENT. 5 credits
FH 670–CONTEMPORARY FRENCH NOVEL. 5 credits
FH 671–CONTEMPORARY FRENCH THEATER. 5 credits
FH 697–SUPERVISED RESEARCH. 1 to 5 credits
FH 698–SUPERVISED TEACHING. 1 to 5 credits
FH 699–MASTER'S RESEARCH. 1 to 15 credits
FH 799–DOCTORAL RESEARCH. 1 to 15 credits

Italian

IN 133–FIRST-YEAR ITALIAN. 3 credits

IN 134–FIRST-YEAR ITALIAN. 3 credits
Prerequisite: IN 133 or equivalent.

IN 135–FIRST-YEAR ITALIAN. 3 credits
Prerequisite: IN 134 or equivalent.

IN 201–SECOND-YEAR ITALIAN. 3 credits
Prerequisite: IN 135 or equivalent.

IN 202–SECOND-YEAR ITALIAN. 3 credits
Prerequisite: IN 201 or equivalent.

IN 203–SECOND YEAR ITALIAN. 3 credits
Prerequisite: IN 202 or equivalent.

Portuguese

PE 133–FIRST-YEAR PORTUGUESE. 5 credits

PE 134–FIRST-YEAR PORTUGUESE. 5 credits
Prerequisite: PE 133 (grade of C or better), or the equivalent.

PE 201–SECOND-YEAR PORTUGUESE. 4 credits
Prerequisite: PE 134 (grade of C or better), or the equivalent.

PE 202–SECOND-YEAR PORTUGUESE. 4 credits
Prerequisite: PE 201 or the equivalent.

PE 304–ORAL PRACTICE IN PORTUGUESE. 4 credits
Prerequisite: PE 202 or the equivalent.

PE 305–COMPOSITION AND CONVERSATION. 4 credits
Prerequisite: PE 202, or the equivalent.

PE 327–INTRODUCTION TO PORTUGUESE LITERATURE. 4 credits
Prerequisite: PE 202, or permission of the department. A study of major Portuguese writers from the medieval to the modern period.

PE 328—INTRODUCTION TO BRAZILIAN LITERATURE 1. 3 credits
Prerequisite: PE 202, or permission of the department. A study of major Brazilian authors, with emphasis on the 19th century.

PE 329—INTRODUCTION TO BRAZILIAN LITERATURE 2. 3 credits
Prerequisite: PE 202, or permission of the department. A study of major writers of the 20th century.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

PE 551—MACHADO DE ASSIS AND HIS CONTEMPORARIES. 4 credits*

PE 552—ECA DE QUEIROS AND HIS CONTEMPORARIES. 4 credits*

*Available for graduate major credit.

GRADUATE COURSES

PE 600—SPECIAL STUDY IN BRAZILIAN OR PORTUGUESE LITERATURE. 3 to 5 credits. Maximum 15 credits

PE 651—THE 19TH-CENTURY BRAZILIAN NOVEL. 5 credits

PE 652—THE 20TH-CENTURY BRAZILIAN NOVEL. 5 credits

PE 653—BRAZILIAN POETRY AND DRAMA TO 1900. 5 credits

PE 654—BRAZILIAN POETRY AND DRAMA SINCE 1900. 5 credits

PE 660—MEDIEVAL AND RENAISSANCE PORTUGUESE LITERATURE. 5 credits

Spanish

SH 133—FIRST-YEAR SPANISH. 5 credits

SH 134—FIRST-YEAR SPANISH. 5 credits
Prerequisite: SH 133 (grade of C or better), or the equivalent.

SH 201—SECOND-YEAR SPANISH. 4 credits
Prerequisite: SH 134 (grade of C or better), or the equivalent.

SH 202—SECOND-YEAR SPANISH. 4 credits
Prerequisite: SH 201, or the equivalent.

SH 204—ORAL PRACTICE IN SPANISH. 4 credits
Prerequisite: SH 202, or the equivalent.

SH 305—GRAMMAR AND COMPOSITION 1. 4 credits
Prerequisite: SH 202, or the equivalent.

SH 306—GRAMMAR AND COMPOSITION 2. 4 credits
Prerequisite: SH 305, or the equivalent.

SH 327—INTRODUCTION TO SPANISH LITERATURE 1. 3 credits
Prerequisite: SH 202, or the equivalent. Study of representative texts from early Middle Ages to the *Celestina*.

SH 328—INTRODUCTION TO SPANISH LITERATURE 2. 3 credits
Prerequisite: SH 202, or the equivalent. Study of representative texts from the Renaissance through the Golden Age.

SH 329—INTRODUCTION TO SPANISH LITERATURE 3. 3 credits
Prerequisite: SH 202, or the equivalent. Study of representative texts from the Golden Age to the present day.

SH 330—SPANISH AND SPANISH-AMERICAN CIVILIZATION. 4 credits
Prerequisite: SH 202 or the equivalent.
Introduction to the peoples, institutions, and culture of the Spanish and Spanish-American World.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

SH 504—SPANISH PHONETICS. 4 credits*
Prerequisites: SH 304-306 and SH 327-329.

SH 505—ADVANCED COMPOSITION AND SYNTAX. 5 credits*
Prerequisites: SH 304-306 and SH 327-329.

SH 506—THE STRUCTURE OF SPANISH. 4 credits*
Prerequisites: SH 304-306 and SH 327-329.

SH 512—HISTORY OF THE SPANISH LANGUAGE. 4 credits*
Prerequisites: SH 304-306 and SH 327-329.

SH 513—SPANISH LYRIC POETRY. 4 credits*
Prerequisites: SH 304-306 and SH 327-329.

SH 521—SPANISH DRAMA OF THE GOLDEN AGE. 4 credits*
Prerequisites: SH 304-306 and SH 327-329.

SH 522—SPANISH PROSE FICTION OF THE GOLDEN AGE. 4 credits*
Prerequisites: SH 304-306 and SH 327-329.

SH 531—SPANISH DRAMA OF THE 19TH CENTURY. 4 credits*
Prerequisites: SH 304-306 and SH 327-329.

SH 532—SPANISH NOVEL OF THE 19TH CENTURY. 4 credits*
Prerequisites: SH 304-306 and SH 327-329.

SH 541—THE GENERATION OF '98. 4 credits*
Prerequisites: SH 304-306 and SH 327-329.

SH 550—CONTEMPORARY SPANISH LITERATURE. 4 credits*
Prerequisites: SH 304-306 and SH 327-329. A study of selected works of the major writers of the last thirty years, including Lorca, Cela, and Cernuda.

SH 575—INTRODUCTION TO SPANISH-AMERICAN LITERATURE 1. 4 credits*
Prerequisites: SH 304-306 and SH 327-329. A study of selected works from the colonial period through Romanticism.

SH 576—INTRODUCTION TO SPANISH-AMERICAN LITERATURE 2. 4 credits*
Prerequisites: SH 304-306 and SH 327-329. A study of selected works from Modernism to the present day.

SH 577—SPANISH-AMERICAN PROSE FICTION. 4 credits*
Prerequisites: SH 304-306 and SH 327-329. Emphasis on the novel and the short story of the 19th and 20th centuries.

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*Available for graduate major credit.

GRADUATE COURSES

SH 600—SPECIAL STUDY IN SPANISH OR SPANISH-AMERICAN LITERATURE. 5 credits
SH 605—INDIVIDUAL WORK. 2 to 5 credits. Maximum 15 credits
SH 610—INTRODUCTION TO GRADUATE STUDY AND RESEARCH. 5 credits
SH 618—OLD SPANISH LITERATURE 1. 5 credits
SH 619—OLD SPANISH LITERATURE 2. 5 credits
SH 625—SPANISH POETRY OF THE GOLDEN AGE. 5 credits
SH 635—LOPE DE VEGA AND HIS CONTEMPORARIES. 5 credits
SH 637—CERVANTES 1. 5 credits
SH 638—CERVANTES 2. 5 credits
SH 640—THE PICARESQUE NOVEL. 5 credits
SH 655—GAUCHO LITERATURE. 5 credits
SH 660—THE MODERNIST MOVEMENT. 5 credits
SH 665—THE SPANISH-AMERICAN ESSAY. 5 credits
SH 667—CONTEMPORARY SPANISH-AMERICAN NOVEL. 5 credits
SH 685—CONTEMPORARY SPANISH NOVEL. 5 credits
SH 686—CONTEMPORARY SPANISH THEATER. 5 credits
SH 697—SUPERVISED RESEARCH. 1 to 5 credits
SH 698—SUPERVISED TEACHING. 1 to 5 credits
SH 699—MASTER'S RESEARCH. 1 to 15 credits
SH 799—DOCTORAL RESEARCH. 1 to 15 credits

Sociology

INSTRUCTIONAL STAFF 1969-70

Leslie, G. R., *Chairman;* Albrecht, R. E.; Berardo, F. M.; Bock, E. W.; Denman, S. B.; Eddy, E. M.; Gorman, B. L.; Hunter, H. R.; Iutaka, S.; Kay, B. A.; Larson, R. F.; Maclachlan, E. S.; Monsees, D. M.; Robbins, C. L.; Saunders, J. V. D.; Smith, T. L.; Vandiver, J. S.; Warheit, G. J.; Webber, I. L.

Sociology majors are ordinarily required to take SY 201, SY 340, and two of the following three courses: SY 503, SY 504, and SY 542. All three of these courses are recommended for undergraduates who intend to take graduate work in Sociology, and for graduate minors in Sociology.

In addition to the above, all Sociology majors in the social welfare area are required to take SY 311 and SY 312.

All undergraduates who are considering Sociology as a major should contact a departmental academic adviser soon after enrollment in the University.

SY 201—PRINCIPLES OF SOCIOLOGY. 4 credits

Prerequisite: Sophomore standing or demonstrated superior ability. Fundamental principles and concepts of sociology, with emphasis on contemporary American institutions in relation to technological change, ethnic groups, population trends, and social control.

SY 202—SOCIAL PROBLEMS. 4 credits

Prerequisite: SY 201 or consent of department. Theoretical and empirical analysis of major social problems in the United States and over the world. Includes problems of the cities, poverty, crime, race, family, education, religion, population, alcoholism, and drug addiction.

SY 230—MARRIAGE AND THE FAMILY. 4 credits

Prerequisite: Classification as 2UC. The Family in the contemporary United States. Socialization for masculine and feminine roles. Social factors in marital adjustment and parenthood.

SY 311—THE FIELD OF SOCIAL WORK. 4 credits

Prerequisite: SY 201. Factors influencing the growth and development of social work. Application of sociological principles to social work activities. Field visits to welfare agencies.

SY 312—METHODS IN SOCIAL WORK. 4 credits

Prerequisite: SY 311 or permission of instructor. Methods relating to social case work, social group work, social administration, and social research. Supervised field work.

SY 321—COMMUNITY ORGANIZATION. 4 credits

Prerequisite: SY 201. A study of community structures, activities, problems and resources. Special attention will be devoted to the problems of community organization in Florida.

SY 340—SOCIOLOGICAL MEASUREMENTS. 4 credits

Prerequisite: SY 201. Sociological and anthropological measurements. Current trends in sociological and anthropological measurements and in research techniques.

SY 350—URBAN SOCIOLOGY. 4 credits

Prerequisite: SY 201 or consent of the department. The dominance of the city in American life and its social institutions. Sociological problems and principles involved in city planning.

SY 355—RURAL SOCIOLOGY. 4 credits

Prerequisite: SY 201 or consent of the department. American life in the changing regions. Trends in rural social resources and problems in the United States, the Southeast, Florida.

SY 360—SURVEY OF LATIN AMERICAN SOCIETIES. 4 credits

Prerequisite: SY 201. Social change in Latin America. Major social systems and man-land relations. Elites. Population characteristics and development.

SY 380—SOCIETY AND THE INDIVIDUAL. 4 credits

Prerequisite: SY 201. The individual in the social structure. The individual as an agent of social change. The role of the individual in cultural transmission, diffusion, and invention.

SY 391—MINORITY GROUPS. 4 credits

Prerequisite: SY 201. The major aspects of minority group problems in the United States. The sociological analysis of the structure, culture, and social processes of ethnic, religious and racial groups in America.

SY 425—SOCIOLOGY OF RELIGION. (identical with RN 425) 4 credits

Prerequisite: SY 201. A general study of the sociological approaches to religious phenomena; their structural and functional dimensions, and their relations with the larger society.

SY 430—INDIVIDUAL WORK. 4 credits

Prerequisite: 12 hours of sociology and consent of department. Designed to permit students to work in areas not covered in regularly scheduled courses, may be repeated for credit up to 8 hours with change of content.

SY 471—POPULATION. 4 credits

Prerequisite: 8 hours of sociology. Demographic characteristics of the modern world. Historical trends. Interrelationships between population and national economies. Contemporary population growth and problems of increased density, of food, and of modernization in undeveloped countries.

SY 492—BLACK AMERICA: CURRENT PROBLEMS. 4 credits

Prerequisite: SY 391. A general survey of social conditions, social institutions, and group leadership among Afro-Americans today.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

SY 503—DEVELOPMENT OF SOCIOLOGICAL THOUGHT. 4 credits*

Prerequisite: 8 hours of sociology. The development of sociological thought in Europe and the United States.

SY 504—ADVANCED GENERAL SOCIOLOGY. 4 credits*

Prerequisite: 12 hours of sociology, including SY 201. Intensive study at an advanced level of the general principles of sociology.

SY 514—SOCIAL FACTORS IN HEALTH AND ILLNESS. 4 credits*

Prerequisite: 12 hours of sociology including SY 201. Effects of group characteristics in the causation, amelioration, and prevention of mental and physical illness and social influences in medical education, medical practice, and hospital administration.

SY 518—SOCIAL GERONTOLOGY. 4 credits*

Prerequisite: SY 201. A survey of the demographic, work, retirement, social status, family and institutional factors associated with the later stages of life.

SY 522—SOCIAL STRATIFICATION. 4 credits*

Prerequisite: SY 201. Class and caste systems; classes as subcultures; social mobility; emphasis on contemporary industrial societies.

SY 524—SOCIAL STRUCTURE. 4 credits*

Prerequisite: 12 hours of sociology, including SY 201. Some bases of integration of societies and large groups: social institutions, social differentiation, and social control, with emphasis on American and other modern societies.

SY 529—COMPLEX ORGANIZATIONS. 4 credits*

Prerequisite: 12 hours of sociology or equivalent foundation in MGT, ISE, EDA, EDS, PCL, ES. The behavior of individuals and system units in formal organization; bureaucratic models; government, hospital, church, school, industry, etc., as manifestations of a common principle.

SY 530—INDIVIDUAL WORK. 1 to 5 credits*

Prerequisite: 16 hours of sociology and consent of the department. Designed to permit advanced students to do work in subjects not available in currently offered courses. May be repeated for credit up to 10 hours with change of content.

SY 532—THE AMERICAN FAMILY. 4 credits*

Prerequisite: SY 201. Nuclear and extended kinship relations in the United States. Variations by race, religion, and social class. Theories of family structure and family change.

SY 533—COMPARATIVE FAMILY SYSTEMS. 4 credits*

Prerequisite: SY 201. An intercultural and historical analysis of the family as a social institution. Emphasizes development of Western family organization. Basic features of U. S. kinship system within the historical and intercultural context.

SY 540—ADVANCED SOCIOLOGICAL MEASUREMENTS. 4 credits*

Prerequisite: SY 340. Uses of quantitative techniques in sociology, including measurement models, laws, and theories. Applications of these techniques to the study of social systems. Problems of numerical measurement and aggregation in various models.

SY 542—SOCIAL RESEARCH AND INVESTIGATION. 5 credits*

Prerequisite: SY 340. Application of the scientific method to sociological data. Research design, instrument construction, collection and analysis of data.

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*Available for graduate major credit.

SY 563—MODERNIZATION IN LATIN AMERICA. 4 credits*

Prerequisite: 8 hours of sociology including SY 201. Some causes and consequences of modernization. Changes in the economic, political and governmental institutions and in the family. The role of education in modernization. Urbanization, industrialization and population change. Changing bases of power. Differential modernization.

SY 564—COMPARATIVE SOCIOLOGY: THEORY AND METHODS. 4 credits*

Prerequisite: Senior standing. Analysis of regularities and differences among societies. The importance of cross-societal research for building sociological theories. Methodological problems and solutions for the design and interpretation of cross-societal investigation.

SY 572—DEMOGRAPHIC ANALYSIS. 4 credits*

Prerequisite: SY 471. Rates, ratios, and measures of fertility and mortality; the life table, life table techniques; population models; cohort analysis; estimations and projections of fertility and mortality.

SY 580—PRIMARY GROUP INTERACTION. 4 credits*

Prerequisite: SY 380 or equivalent. Social sources of motives; social basis of the self; nature of primary groups; institutional roles and exceptional and unconventional roles.

SY 581—COLLECTIVE BEHAVIOR. 4 credits*

Prerequisite: SY 201. Forms, processes and behavior in collectivities, crowds, publics, and transitory groupings.

SY 582—SOCIAL MOVEMENTS. 4 credits*

Prerequisite: two courses in Sociology, including SY 201. The forms, processes and functions of general and specific social movements.

SY 585—JUVENILE DELINQUENCY. 4 credits*

Prerequisite: 8 hours of sociology, including SY 201. Factors of causation and methods of treatment and prevention.

SY 586—CRIMINOLOGY AND PENOLOGY. 5 credits*

Prerequisite: SY 201. Nature and causes of crime. Punishment, treatment, prevention of criminality. Sociological aspects of criminal law and procedure.

SY 587—ADVANCED STUDIES OF MAJOR SOCIAL PROBLEMS. 4 credits*

Prerequisites: SY 201 and SY 202. Advanced analytical studies of four polarizations of social problems: (1) social motivation-alienation (2) work-leisure (3) social change-social stability, and (4) social control-social anarchy.

SY 590—THE SOUTH TODAY. 4 credits*

Prerequisite: 8 hours of sociology, including SY 201. Social resources in the Southeast. Variant patterns, population pressure and trends; the major problems, programs and plans for the region.

SY 591—MASTERPIECES IN SOCIAL SCIENCES 1. 4 credits*

(Identical with HY 591, ES 591, and PCL 591).

Prerequisites: Senior standing and a major in one of the social sciences. For advanced students with background work in the social sciences who have approval of their major adviser and the course chairman. Reading of classics in economics, history, political science, sociology, and cultural anthropology.

SY 592—MASTERPIECES IN SOCIAL SCIENCES 2. 4 credits*

(Identical with HY 592, ES 592, and PCL 592).
The second part of the course SY 591-593.

SY 593—MASTERPIECES IN SOCIAL SCIENCES 3. 4 credits*

(Identical with HY 593, ES 593, and PCL 593).
The third part of the course SY 591-593.

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*Available for graduate major credit.

SY 599—SPECIAL STUDY IN SOCIOLOGY. 4 credits*
Prerequisite: 12 hours of sociology, including SY 201. Pro-seminar study on specialized sociological topics. May be repeated for credit with change of content for a maximum of 12 hours.

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*Available for graduate major credit.

GRADUATE COURSES

SY 605—THE DEVELOPMENT OF SOCIOLOGICAL THEORIES. 4 credits
SY 606—BASIC SOCIOLOGICAL THEORIES. 4 credits
SY 607—THEORY CONSTRUCTION. 4 credits
SY 615—COMPARATIVE STUDIES IN HEALTH SYSTEMS. 4 credits
SY 616—HEALTH FACILITIES IN THE MODERN COMMUNITY. 4 credits
SY 617—HEALTH PROFESSIONS IN THE MODERN COMMUNITY. 4 credits
SY 618—THE SOCIOLOGY OF THE AGED. 4 credits
SY 630—INDIVIDUAL WORK. 1 to 5 credits
SY 634—SEMINAR IN FAMILY THEORIES. 4 credits
SY 635—SEMINAR IN FAMILY RESEARCH. 4 credits
SY 643—SOCIAL RESEARCH METHODS. 4 credits
SY 648—SURVEY RESEARCH. (Identical with PCL 615) 4 credits
SY 651—SEMINAR IN METROPOLITAN GROWTH AND DEVELOPMENT. 4 credits
SY 652—SEMINAR IN URBAN ECOLOGY. 4 credits
SY 653—SEMINAR IN COMPARATIVE URBANIZATION. 4 credits
SY 658—SEMINAR: SOCIOLOGY OF RURAL DEVELOPMENT. 4 credits
SY 664—SEMINAR IN SPANISH AMERICAN SOCIETIES. 4 credits
SY 665—SEMINAR IN BRAZILIAN SOCIETY. 4 credits
SY 672—SEMINAR IN POPULATION. 4 credits
SY 673—SEMINAR IN LATIN AMERICAN POPULATION. 4 credits
SY 674—SEMINAR IN FERTILITY, MORTALITY, AND MIGRATION. 4 credits
SY 680—SEMINAR IN SOCIAL INTERACTION AND COLLECTIVE BEHAVIOR. 4 credits
SY 685—DEVIANCE. 4 credits
SY 691—SEMINAR IN AMERICAN MINORITY GROUPS. 4 credits
SY 695—SEMINAR IN CONTEMPORARY AFRICAN SOCIETIES. 4 credits
SY 697—SUPERVISED RESEARCH. 1 to 5 credits
SY 698—SUPERVISED TEACHING. 1 to 5 credits
SY 699—MASTER'S RESEARCH. 1 to 15 credits
SY 749—SEMINAR IN METHODS OF SOCIAL RESEARCH. 4 credits
SY 798—SPECIAL STUDY IN SOCIOLOGY. 4 credits. Maximum 12 credits
SY 799—DOCTORAL RESEARCH. 1 to 15 credits

Speech

INSTRUCTIONAL STAFF 1969-70

Moore, G. P., *Chairman;* Abbott, T. B.; Beatty, P. L.; Brandt, J. F.; Brown, W. S.; Bzoch, K. R.; Carroll, L.; Clark, A. J.; Criddle, E. D.; Dew, D.; Gillette, J. M.; Golder, S. L.; Gramling, L. B.; Green, R. L.; Hale, L. L.; Hammer, L. C.; Hollien, H. F.; Hutchinson, E. C.; Jensen, P. J.; Karns, C. F.; Konishi, T.; Kurtzrock, G. H.; Lake, R. E.; Lauricella, J.; Markel, N. N.; McClelland, K. D.; Neale, J. R., Jr.; Nielsen, D. W.; Paige, A.; Pollock, K. C.; Pollock, M. B.; Rubrecht, A. W.; Schneider, V. L.; Scholes, R. J.; Scroggie, E., Jr.; Suzuki, H.; Teas, D. C.; Tew, R. E.; Wehlburg, A. F. C.; Williams, D. E.; Winter, L. G.; Wittig, J. W.; Zimmerman, L.L.

All speech majors are required to take Speech 201. Other required courses depend on the interests and professional objectives of the student. Major course

concentrations may be developed in general Speech or in one of the following academic areas in the Department: audiology; communication sciences; rhetoric and public address; speech pathology; or theatre and drama.

Transfer students must satisfactorily complete at least 18 credit hours in Speech at the University of Florida to complete a major in the department. The minimum number of credit hours for any departmental major is 36.

All students who are considering Speech as a major should consult the departmental academic advisor soon after enrolling in the University.

SCH 101—PARLIAMENTARY PROCEDURE. 1 credit

Rules governing the proceedings of deliberative assemblies together with practice in their usage.

SCH 180—INTRODUCTION TO COMMUNICATION SCIENCES. 4 credits

Survey of fundamental concepts in Communication Sciences: voice, speech, language and hearing science.

SCH 201—PUBLIC SPEAKING. 4 credits

Prerequisite: CEH 131-132-133. Study and application of principles and procedures for effective presentation of original speeches before audiences.

SCH 210—GENERAL SEMANTICS IN SPOKEN LANGUAGE. 2 credits

Investigation of problems implicit in oral language usage through the study of general theory of symbols.

SCH 220—THEATRE APPRECIATION 1. 4 credits

To develop an appreciation of theatre through a study of theatre history and literature.

SCH 221—THEATRE APPRECIATION 2. 4 credits

To develop an appreciation of theatre through a study of acting, directing and design.

SCH 224—ORAL INTERPRETATION 1. 4 credits

Basic techniques of oral interpretation with emphasis on content analysis and vocal skills.

SCH 225—ORAL INTERPRETATION 2. 4 credits

Prerequisite: SCH 224 or consent of instructor. The application of techniques to the problem of reading various types of literature.

SCH 240—VOICE AND ARTICULATION. 4 credits

Designed to establish good habits of speech through analysis of each student's voice, articulation, and pronunciation, with directed exercises and practice for improvement.

SCH 285—BASIC PHONETICS. (Identical with APY 285.) 5 credits

An analysis of the phonetic elements of American English and their acoustical correlates. Intensive laboratory training in the International Phonetic Alphabet.

SCH 301—GROUP DISCUSSION. 4 credits

Prerequisite: SCH 201. An introduction to the theory of small group deliberation. Special attention given to the application of principles through practice.

SCH 303—TECHNICAL AND PROFESSIONAL COMMUNICATIONS. 4 credits

Prerequisite: SCH 201. Investigation and application of methodology for effective oral communication of specialized subject matter.

SCH 305—ARGUMENTATION. 4 credits

Prerequisite: SCH 201. Study of principles of argumentation as they are applied in oral discourse; analysis of controversial propositions, evidence, and modes of reasoning. Practice in preparation and delivery of speeches in advocacy.

SCH 307—PERSUASION. 4 credits

Prerequisite: SCH 201. Investigation and application of the psychology of audience persuasion in public speaking situations.

SCH 317—INTERCOLLEGIATE DEBATE. 1 credit

May be repeated for maximum of 6 credits. Analysis of propositions of fact, policy and definition; library research methods; formal debate structure; participation in intercollegiate debate.

SCH 320—ACTING 1. 4 credits

Prerequisite: SCH 224 or consent of instructor. A study of the basic techniques and theories of acting.

SCH 321—ACTING 2. 4 credits

Prerequisite: SCH 320 or consent of instructor. A study of acting styles and their relation to theatre aesthetics.

SCH 323—THEATRE PRACTICE. 1 credit

Practical problems in theatre performance and production. An introduction to, and practice of, the standardized methods and procedures of theatre production. May be repeated for maximum of 6 credits.

SCH 324—STAGECRAFT AND DESIGN 1. 4 credits

Prerequisite: SCH 220 or consent of instructor. The basic techniques of scene construction, lighting and painting with an introduction to design principles.

SCH 325—STAGECRAFT AND DESIGN 2. 4 credits

Prerequisite: SCH 324 or consent of instructor. Specialized techniques of stagecraft and design problems.

SCH 326—TECHNICAL THEATRE PRINCIPLES. 4 credits

Prerequisites: SCH 325 or consent of instructor. A study of the specialized techniques and design factors essential to stage scenery, lighting, and costumes.

SCH 327—STAGE MAKEUP. 3 credits

Prerequisites: SCH 220, 221, 320. Study and application of the principles, materials, and procedures for effective execution of theatrical makeup. Majors only, except by permission of instructor.

SCH 329—DIRECTING 1. 4 credits

Prerequisites: SCH 320 and SCH 324 or consent of instructor. Basic principles of play direction, including problems of selecting, casting, and rehearsing plays.

SCH 330—DIRECTING 2. 4 credits

Prerequisites: SCH 320, 324, 329, or consent of instructor. Analysis of selected types of dramatic literature for appropriate directing style, and practical experience in directing projects.

SCH 331—STAGE MOVEMENT 1. 4 credits

Prerequisite: Majors only, or consent of instructor. Basic principles and techniques of stage movement for the actor, including development of the body as an instrument of stage characterization.

SCH 332—STAGE MOVEMENT 2. 4 credits

Prerequisites: SCH 222, or consent of instructor. Advanced principles and techniques of stage movement, including styles of period movement.

SCH 340—SURVEY OF COMMUNICATION DISORDERS. 4 credits

The various types and causes of communication disorders; emphasis on the role of the classroom teacher, the physician, the psychologist and other disciplines. Primarily for non-speech majors. Applies to certification requirements for Special Education.

SCH 341—INTRODUCTION TO SPEECH PATHOLOGY. 4 credits
Basic principles of Speech Pathology including consideration of the types, incidence, recognition and causes of speech and language disorders.

SCH 361—INTRODUCTION TO AUDIOLOGY. 4 credits
Basic principles of Audiology including consideration of hearing loss, auditory tests, hearing aids, aural rehabilitation and the social, educational, psychological and vocational problems of the deaf and hard of hearing.

SCH 385—SPEECH ACOUSTICS. 5 credits
Prerequisite: SCH 285. An introduction to scientific methodologies, physics of sound and elementary instrumentation related to human speech communication.

SCH 386—SPEECH PHYSIOLOGY. 5 credits
Prerequisite: SCH 385. An introduction to elementary anatomy, physiology and neurophysiology of the speaking mechanism.

SCH 400—INDIVIDUAL STUDY. 1 to 4 credits
Available by permission of instructor and department chairman. A project, reading, or research course. May be repeated with change of content up to a maximum of 8 credits.

SCH 405—ADVANCED ARGUMENTATION. 4 credits
Prerequisite: SCH 305. Extensive practice in cross examination, construction of argumentative briefs, and formal debate; special attention to problems of refutation and idea structure in speeches of advocacy.

SCH 410—PERSUASION AND OPINION FORMATION. 4 credits
Prerequisites: SCH 201 and consent of instructor. Advanced study in theories of persuasion, investigating the role of persuasive speaking in shaping public opinion in current campaigns and controversies. Special consideration to dynamics of total speech situation.

SCH 420—ADVANCED LIGHTING DESIGN. 4 credits
Prerequisite: SCH 325 or consent of instructor. Lighting equipment, control, design and aesthetics. Application of the principles of, and responses to, color and light in the theatre.

SCH 422—THEATRICAL COSTUME 1. 4 credits
Prerequisites: SCH 220, SCH 320, SCH 325, SCH 329 or consent of instructor. The history of stage costume and a study of basic design elements, fabrics and patterns. Laboratory experience in costume construction.

SCH 423—THEATRICAL COSTUME 2. 4 credits
Prerequisite: SCH 422 or consent of instructor. Principles of costume design with construction and design projects.

SCH 424—THEATRE PRODUCTION. 4 credits
Prerequisites: SCH 220, SCH 325, SCH 329, SCH 420, SCH 423. Problems of organizing and integrating the composite elements of theatrical production, with the selection and analysis of a laboratory theatre problem.

SCH 439—THE TEACHING OF SPEECH IN THE SECONDARY SCHOOLS. 4 credits
Prerequisites: 8 hours of Speech. Practical philosophy of speech education as it functions at the secondary school level; methods of training in speech arts.

SCH 490—FUNDAMENTALS OF HEARING. 5 credits
Prerequisite: Consent of instructor. Concepts and principles relevant to the normal hearing processes: acoustics, gross anatomy, psychophysical methods, and basic subjective correlates of the auditory system.

SCH 495—INTRODUCTION TO PSYCHOLINGUISTICS. 5 credits

Prerequisite: SCH 285 or consent of instructor. An introduction to the history, scope, problems and present state of the psychology of language. Includes survey of theories and methods of the several discplines concerned with the scientific study of language.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

SCH 500—SPECIAL TOPICS. 3 to 5 credits*

Available by permission of major professor and department chairman. A project or research course needed by seniors or graduate students. May be repeated with change of content up to a maximum of ten credits.

SCH 501—HISTORY OF RHETORICAL THEORY. 5 credits*

Prerequisite: SCH 201 and the consent of instructor. Survey of rhetorical theory from the classical period to the present with special reference to the practical and pedagogical implications of the major contributions.

SCH 505—FORMS OF PUBLIC ADDRESS. 4 credits*

Prerequisite: Advanced performance course in Public Speaking. A practicum in formal public address featuring composition and presentation of special types of speeches, emphasizing considerations of style.

SCH 510—GREAT DEBATES IN AMERICAN LIFE, 1650-1860. 4 credits*

Prerequisite: SCH 201 or consent of instructor. Critical examination of the public speaking in major controversies related to political, social and intellectual life in America. May be taken for credit without SCH 511 or SCH 512.

SCH 511—GREAT DEBATES IN AMERICAN LIFE, 1860-1920. 4 credits*

Prerequisite: SCH 201 or consent of instructor. Second part of three-part sequence; may be taken for credit without SCH 510 or SCH 512.

SCH 512—GREAT DEBATES IN AMERICAN LIFE, 1920-PRESENT. 4 credits*

Prerequisite: SCH 201 or consent of instructor. Third part of three-part sequence; may be taken for credit without SCH 510 or SCH 511.

SCH 520—HISTORY OF THE THEATRE 1. 4 credits*

Prerequisites: SCH 220, SCH 324, SCH 329. Development of the theatre from its beginning through the Middle Ages.

SCH 521—HISTORY OF THE THEATRE 2. 4 credits*

Prerequisites: SCH 220, SCH 324, SCH 329. Development of the theatre from the Middle Ages to the 18th Century.

SCH 522—HISTORY OF THE THEATRE 3. 4 credits*

Prerequisites: SCH 220, SCH 324, SCH 329. Development of the theatre from the 18th Century to the present.

SCH 526—PROBLEMS IN SCENE DESIGN. 4 credits*

Prerequisites: SCH 324, SCH 325, SCH 326, SCH 329, or consent of the instructor. Scene Design as an art: A consideration of the spatial and aesthetic factors operative in the scenic elements with special emphasis on pragmatic considerations of the design process.

SCH 540—PRINCIPLES OF SPEECH PATHOLOGY: ARTICULATION DISORDERS. 4 credits*

Prerequisites: SCH 285, SCH 341, SCH 386 or consent of instructor. Basic principles of diagnosis and therapy for individuals with articulatory disorders.

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*Available for graduate major credit.

SCH 541—PRINCIPLES OF SPEECH PATHOLOGY: VOICE DISORDERS. 4 credits*

Prerequisites: SCH 341, SCH 386 or consent of instructor. Theory and techniques of diagnosis and therapy for voice disorders.

SCH 542—PRINCIPLES OF SPEECH PATHOLOGY: LANGUAGE DISORDERS. 4 credits*

Prerequisites: SCH 341, SCH 495 or consent of instructor. Theory and technique of diagnosis and therapy for language disorders.

SCH 543—PRINCIPLES OF SPEECH PATHOLOGY: STUTTERING. 4 credits*

Prerequisites: SCH 341, or consent of instructor. Theory and technique of diagnosis and therapy for stuttering.

SCH 549—PRINCIPLES OF SPEECH PATHOLOGY AND AUDIOLOGY: DIAGNOSIS AND APPRAISAL. 4 credits*

Prerequisites: SCH 341 and SCH 361. Interviewing principles, examination procedures, standardized testing, and clinical assessment techniques.

SCH 560—PRINCIPLES OF AUDIOLOGICAL EVALUATION 1. 4 credits*

Prerequisite: SCH 361 or consent of instructor. Basic techniques in pure-tone and speech audiometry. Interpretation of test results.

SCH 561—PRINCIPLES OF AUDIOLOGICAL EVALUATION 2. 4 credits*

Prerequisite: SCH 560 or consent of instructor. Advanced techniques in pure-tone and speech audiometry. Clinical practice.

SCH 570—HEARING AIDS AND AUDITORY TRAINING. 4 credits*

Prerequisite: SCH 361 or consent of instructor. A study of the rationale and methods in auditory training and the operational principles of individual and group amplification systems; hearing aid consultation and evaluation. Clinical observation and supervised practice.

SCH 571—VISUAL COMMUNICATION FOR THE DEAF AND HARD OF HEARING. 4 credits*

Prerequisite: SCH 361 or consent of instructor. Basic principles and procedures for the deaf and hard of hearing in the visual reception of speech.

SCH 572—SPEECH AND LANGUAGE FOR THE DEAF AND HARD OF HEARING. 4 credits*

Prerequisite: SCH 361 or consent of instructor. Basic principles and procedures in the development and correction of speech and language of the deaf and hard of hearing.

SCH 580—LABORATORY INSTRUMENTATION. 5 credits*

Description and analysis of electro-acoustical instruments employed in Communication Sciences research; basic electronic concepts necessary for the instrumental study of speech, hearing and language.

SCH 585—ADVANCED PHONETICS AND PHONEMICS. 5 credits*

Prerequisite: SCH 285 and SCH 495. Advanced study of the sounds of spoken English. Detailed examination of dialect differences, the phonemic structure of English, phonemic theory, and the description of non-language sounds. Includes transcription practice.

SCH 590—NEUROPHYSIOLOGY OF HEARING. 5 credits*

Prerequisites: SCH 490 and consent of instructor. Neuroanatomy of the auditory system, perepheral and central dynamics of the cochlea, electrophysiological response in the cochlea and in various levels of the auditory system.

SCH 596—LANGUAGE ACQUISITION. 5 credits*

Prerequisites: SCH 285 and SCH 495. Critical review of the theoretical and research literature relevant to acquisition of language.

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*Available for graduate major credit.

GRADUATE COURSES

SCH 600–INTRODUCTION TO GRADUATE STUDY. 4 credits
SCH 601–SEMINAR IN ANCIENT AND MEDIEVAL RHETORIC. 5 credits
SCH 602–SEMINAR IN RENAISSANCE AND MODERN RHETORIC. 5 credits
SCH 603–SEMINAR IN CONTEMPORARY RHETORIC. 5 credits
SCH 605–RHETORICAL CRITICISM. 5 credits
SCH 608–SEMINAR IN AMERICAN PUBLIC ADDRESS. 5 credits
SCH 609–SEMINAR IN BRITISH PUBLIC ADDRESS. 5 credits
SCH 610–SEMINAR IN SOUTHERN PUBLIC ADDRESS. 5 credits
SCH 617–QUANTITATIVE RESEARCH IN RHETORIC AND PUBLIC ADDRESS: APPLIED METHODOLOGIES. 5 credits
SCH 620–ADVANCED PROBLEMS OF STAGE DIRECTION. 5 credits
SCH 621–ADVANCED PROBLEMS IN SCENE DESIGN. 5 credits
SCH 622–AMERICAN PLAYS, PLAYERS, AND PLAYWRIGHTS 1. 4 credits
SCH 623–AMERICAN PLAYS, PLAYERS, AND PLAYWRIGHTS 2. 4 credits
SCH 624–READINGS IN THEATRICAL HISTORY 1. 4 credits
SCH 625–READINGS IN THEATRICAL HISTORY 2. 4 credits
SCH 626–BACKGROUNDS IN MODERN THEATRICAL PRACTICE. 4 credits
SCH 627–ART HISTORY OF THE THEATRE. 4 credits. Maximum of 8 credits
SCH 628–SEMINAR IN THEATRE AESTHETICS 1. 4 credits
SCH 629–SEMINAR IN THEATRE AESTHETICS 2. 4 credits
SCH 630–INDIVIDUAL STUDY. 1 to 10 credits. Maximum 10 credits
SCH 631–STYLES IN THEATRICAL ART 1. 4 credits
SCH 632–STYLES IN THEATRICAL ART 2. 4 credits
SCH 633–STYLES IN THEATRICAL ART 3. 4 credits
SCH 634–SEMINAR AND PRACTICUM IN MODERN THEATRE DESIGN AND PRACTICE (DESIGN, LIGHTING, COSTUME). 4 credits Maximum 12 credits
SCH 638–SPEECH RESEARCH (THEATRE). 4 credits
SCH 639–THEORIES OF INTERPRETATIVE READING. 4 credits
SCH 640–SEMINAR IN SPEECH PATHOLOGY: ARTICULATION DISORDERS. 4 credits
SCH 641–SEMINAR IN SPEECH PATHOLOGY: VOICE DISORDERS. 4 credits
SCH 642–SEMINAR IN SPEECH PATHOLOGY: LANGUAGE DISORDERS. 4 credits
SCH 643–SEMINAR IN SPEECH PATHOLOGY: STUTTERING. 4 credits
SCH 649–CLINICAL PRACTICE IN SPEECH PATHOLOGY: DIAGNOSIS. 1 to 10 credits. Maximum 10 credits
SCH 654–SEMINAR IN SPEECH PATHOLOGY AND AUDIOLOGY: MENTAL RETARDATION. 4 credits
SCH 655–SEMINAR IN SPEECH PATHOLOGY AND AUDIOLOGY: CEREBRAL PALSY. 4 credits
SCH 656–SEMINAR IN SPEECH PATHOLOGY AND AUDIOLOGY: APHASIA. 4 credits
SCH 657–SEMINAR IN SPEECH PATHOLOGY AND AUDIOLOGY: CLEFT PALATE. 4 credits
SCH 659–CLINICAL PRACTICE IN SPEECH PATHOLOGY: THERAPY. 1 to 15 credits. Maximum 15 credits
SCH 660–SEMINAR IN AUDIOLOGY: DIAGNOSTIC PROCEDURES. 4 credits
SCH 669–CLINICAL PRACTICE IN HEARING MEASUREMENT. 1 to 10 credits Maximum 10 credits
SCH 670–SEMINAR IN AUDIOLOGY: AURAL REHABILITATION. 4 credits
SCH 671–SEMINAR IN AUDIOLOGY: PROBLEMS OF THE DEAF AND HARD OF HEARING. 4 credits
SCH 679–CLINICAL PRACTICE IN AURAL REHABILITATION. 1 to 10 credits. Maximum 10 credits
SCH 680–PRO-SEMINAR IN COMMUNICATION SCIENCES 1. 3 credits
SCH 681–PRO-SEMINAR IN COMMUNICATION SCIENCES 2. 3 credits
SCH 682–PRO-SEMINAR IN COMMUNICATION SCIENCES 3. 3 credits
SCH 685–EXPERIMENTAL PHONETICS 1. 3 credits
SCH 686–EXPERIMENTAL PHONETICS LAB 1. 3 credits

SCH 687—EXPERIMENTAL PHONETICS 2. 3 credits
SCH 688—EXPERIMENTAL PHONETICS LAB 2. 3 credits
SCH 690—PSYCHOACOUSTICS. 5 credits
SCH 691—PSYCHOACOUSTICS LABORATORY. 3 credits
SCH 692—PSYCHOPHYSIOLOGY OF HEARING. 5 credits
SCH 694—EXPERIMENTAL LINGUISTICS. 5 credits
SCH 695—PSYCHOLINGUISTICS. 5 credits
SCH 696—PSYCHOLINGUISTICS LABORATORY. 3 credits
SCH 697—SUPERVISED RESEARCH. 1 to 5 credits
SCH 698—SUPERVISED TEACHING. 1 to 5 credits
SCH 699—MASTER'S RESEARCH. 1 to 15 credits
SCH 720—SEMINAR IN PRODUCTION THEORY ANALYSIS AND APPLICATION. 4 credits
SCH 749—PRACTICUM IN SPEECH PATHOLOGY IN A MEDICAL-DENTAL SETTING. 3 to 10 credits. Maximum 12 credits
SCH 769—PRACTICUM IN AUDIOLOGY IN A MEDICAL SETTING. 3 to 10 credits. Maximum 12 credits
SCH 772—SEMINAR IN AUDIOLOGY: HEARING CONSERVATION AND NOISE CONTROL. 4 credits
SCH 780—SEMINAR IN COMMUNICATION SCIENCES. 3 credits
SCH 785—SEMINAR IN EXPERIMENTAL PHONETICS. 3 credits
SCH 786—SEMINAR IN SPEECH RECOGNITION. 3 credits
SCH 790—SEMINAR IN AUDITION. 3 credits
SCH 795—SEMINAR IN PSYCHOLINGUISTICS. 3 credits
SCH 796—SEMINAR IN EXPERIMENTAL LINGUISTICS. 3 credits
SCH 799—DOCTORAL RESEARCH. 1 to 15 credits

Statistics

INSTRUCTIONAL STAFF 1969-70

Mendenhall, W., *Chairman;* Chanda, K. C.; Cornell, J. A.; Davis, C. E.; Martin, F. G.; Ott, R. L.; Patterson, R. L.; Pop-Stojanovic, Z. R.; Ramey, M. C.; Rao, P. V.; Saw, J. G.; Scheaffer, R. L.; Shuster, J. J.; Thornby, J. I.

An undergraduate major in statistics is offered in both the College of Agriculture and the College of Arts and Sciences. Students planning an undergraduate major in statistics should consult the departmental major adviser, Dr. R. Lyman Ott, Room G183B, Dan McCarty Hall. In preparation for this program the student should take the following courses during the freshman and sophomore years: MS 301-302-303-304. Upper division courses will include: STA 440-441-442, 525-526-527. The balance of the major will be selected in consultation with the adviser.

STA 320—INTRODUCTION TO STATISTICS 1. 4 credits

Development of the fundamental statistical concepts and their relationship to the social and physical sciences.

STA 321—INTRODUCTION TO STATISTICS 2. 3 credits

Prerequisite: STA 320 or 330. An introduction to the analysis of variance. Chi-square and contingency tables. Nonparametric statistical methods and applications.

STA 330—ENGINEERING STATISTICS. 3 credits

A survey of the basic concepts in statistics with engineering application.

STA 420—SAMPLE SURVEY DESIGN. 3 credits

Prerequisite: STA 320 or equivalent. An introduction to the design of sample surveys in the economic and social sciences. Questionnaire construction, stratified sampling, ratio and regression estimators.

STA 440—MATHEMATICAL STATISTICS 1. 3 credits

Prerequisite: MS 302. An introduction to the theory of probability, sample space, laws of probability, random variables and their probability distributions. Expectations of random variables and functions of random variables; applications.

STA 441—MATHEMATICAL STATISTICS 2. 3 credits

Prerequisite: STA 440. Distributions of functions of variables, introduction to theories of estimation and tests of hypotheses, applications.

STA 442—MATHEMATICAL STATISTICS 3. 3 credits

Prerequisite: STA 441. An introduction to least squares, correlation, analysis of variance, and design of experiments. Nonparametric methods.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

STA 520—STATISTICAL METHODS IN RESEARCH. 3 credits*

Prerequisite: STA 320 or graduate standing. Primarily for graduate students not majoring in statistics who require basic concepts and techniques of statistics. Distributions of sample statistics, estimation, tests of hypotheses, simple linear correlation and regression.

STA 521—EXPERIMENTAL DESIGN IN RESEARCH 1. 3 credits*

Prerequisite: STA 520. Multiple regression and correlation. Introduction to the basic experimental designs, randomized blocks, Latin square, etc., with applications to problems in the physical, biological and social sciences.

STA 522—EXPERIMENTAL DESIGN IN RESEARCH 2. 3 credits*

Prerequisite: STA 521. A continuation of STA 521. The factorial experiment, covariance analysis and nonparametric techniques.

STA 523—COMPUTER PROGRAMS IN STATISTICAL ANALYSIS 1. 2 credits*

Prerequisite: Concurrent registration in STA 521 or STA 526, or consent of instructor. Instructions for utilizing library programs with statistical interpretation of terms and parameters.

STA 524—COMPUTER PROGRAMS IN STATISTICAL ANALYSIS 2. 2 credits*

Prerequisite: STA 523 and concurrent registration in STA 522 or STA 527, or consent of instructor. Advanced programs in statistical analysis with review of basic matrix concepts.

STA 525—DESIGN AND ANALYSIS OF EXPERIMENTS 1. 3 credits*

Prerequisite: STA 441. Basic concepts in the design of experiments. Linear statistical models. The method of least squares and the analysis of variance for orthogonal experimental designs.

STA 526—DESIGN AND ANALYSIS OF EXPERIMENTS 2. 3 credits*

Prerequisite: STA 525. Multiple comparison procedures. Transformations to stabilize variances. The analysis of enumerative data. Transformations on the independent variables. Orthogonal systems of coding.

STA 527—DESIGN AND ANALYSIS OF EXPERIMENTS 3. 3 credits*

Prerequisite: STA 526. Response surface exploration. Evolutionary operations. Fractional factorial experiments and incomplete block designs. Some completely random and mixed models.

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* Available for graduate major credit.

GRADUATE COURSES

STA 601—ADVANCED METHODS OF STATISTICS. 3 credits
STA 610—INTRODUCTION TO THEORETICAL STATISTICS 1. 3 credits
STA 611—INTRODUCTION TO THEORETICAL STATISTICS 2. 3 credits
STA 612—INTRODUCTION TO THEORETICAL STATISTICS 3. 3 credits
STA 619—THEORY OF LEAST SQUARES. 4 credits
STA 620—THEORY OF COMPLETELY RANDOM AND MIXED MODELS. 4 credits
STA 621—DESIGN OF EXPERIMENTS. 4 credits
STA 622—SAMPLING THEORY AND APPLICATION 1. 4 credits
STA 623—THE ANALYSIS OF MULTIVARIATE DATA. 4 credits
STA 624—SAMPLING THEORY AND APPLICATION 2. 4 credits
STA 626—APPLIED TIME SERIES ANALYSIS. 4 credits
STA 628—PROBLEMS IN STATISTICS. 1 to 5 credits. Maximum 9 credits
STA 635—BIOSTATISTICS 1. 4 credits
STA 636—BIOSTATISTICS 2. 4 credits
STA 637—BIOSTATISTICS 3. 4 credits
STA 640—PROBABILITY THEORY 1. 4 credits
STA 641—PROBABILITY THEORY 2. 4 credits
STA 642—PROBABILITY THEORY 3. 4 credits
STA 650—NONPARAMETRIC STATISTICS 1. 4 credits
STA 651—NONPARAMETRIC STATISTICS 2. 4 credits
STA 652—SEQUENTIAL ANALYSIS. 4 credits
STA 660—STOCHASTIC PROCESSES 1. 3 credits
STA 661—STOCHASTIC PROCESSES 2. 3 credits
STA 662—STOCHASTIC PROCESSES 3. 3 credits
STA 670—MULTIVARIATE ANALYSIS 1. 4 credits
STA 671—MULTIVARIATE ANALYSIS 2. 4 credits
STA 680—TIME SERIES 1. 4 credits
STA 681—TIME SERIES 2. 4 credits
STA 682—TIME SERIES 3. 4 credits
STA 683—ADVANCED PROBABILITY THEORY 1. 4 credits
STA 684—ADVANCED PROBABILITY THEORY 2. 4 credits
STA 690—SPECIAL TOPICS IN STATISTICS. 4 credits
STA 691—SEMINAR. 1 credit
STA 697—SUPERVISED RESEARCH. 1 to 5 credits
STA 698—SUPERVISED TEACHING. 1 to 5 credits
STA 699—MASTER'S RESEARCH. 1 to 15 credits
STA 740—ADVANCED STATISTICAL INFERENCE 1. 4 credits
STA 741—ADVANCED STATISTICAL INFERENCE 2. 4 credits
STA 799—DOCTORAL RESEARCH. 1 to 15 credits

Swahili*

INSTRUCTIONAL STAFF 1969-70

Der-Houssikian, H.

SI 133—FIRST-YEAR SWAHILI. 5 credits

SI 134—FIRST-YEAR SWAHILI. 5 credits
Prerequisite: SI 133 or equivalent.

SI 201—SECOND-YEAR SWAHILI. 4 credits
Prerequisite: SI 134 or equivalent.

SI 202—SECOND-YEAR SWAHILI. 4 credits
Prerequisite: SI 201 or equivalent.

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* Administered by the Department of Romance Languages and Literatures.

SI 506—THE STRUCTURE OF SWAHILI. 4 credits
Prerequisite: FLE 301 or the equivalent.

Zoology

INSTRUCTIONAL STAFF 1969-70

DeWitt, R. M., *Acting Chairman;* Auffenberg, W.; Austin, O. L., Jr.; Berner, L.; Brodkorb, P.; Brookbank, J. W.; Carr, A. F.; Carr, W. E.; Chernetski, K. E.; Confer, J. L.; Dickinson, J. C., Jr.; Elliott, P. R.; Emmel, T. C.; Gilbert, C. R.; Goin, C. G.; Gregg, J. H.; Johnson, F. C.; Johnston, D. W.; Jones, E. R.; Kaufmann, J. H.; Kilby, J. D.; Laessle, A. M.; Lanciana, C. A.; Leavitt, B. B.; Maslin, P.; Maturo, F. J. S.; McNab, B. K.; Nation, J. L.; Nordlie, F. G.; Patton, T. H.; Pierce, E. L.; Reiskind, J.; Wallace, H. K.; Wallbrunn, H. M.; Webb, S. D.; Westfall, M. J.; Zam, S. F.

UNDERGRADUATE STUDENTS who intend to major in this department should plan a program in which introductory chemistry and introductory zoology laboratory are taken as early as possible in the freshman year. The introductory zoology course has been planned so that the student will take the laboratory course (ZY 201) at least one quarter before starting the lecture course (ZY 202), which has a chemistry pre-requisite of CY 202 or 211. ZY 201 and 202 are prerequisites for all courses in the department unless otherwise indicated.

The minimum number of credits required for a Zoology major is 36, including the following: introductory laboratory and lecture, comparative anatomy or functional morphology, embryology, genetics, ecology, invertebrate or vertebrate zoology, and cellular or tissue and organ physiology. One year of college physics, chemistry through organic, and mathematics through MS 302 are also required. Quantitative analysis and physical chemistry are recommended. The student is advised to begin these sequences as early as possible.

PREMEDICAL STUDENTS, in addition to the above, are usually expected to take quantitative analysis and physical chemistry. MS 303 is recommended. Acceptable elective courses in zoology may be substituted for ecology, invertebrate and vertebrate zoology.

DEPARTMENTAL HONORS. To be eligible to work for departmental honors in Zoology, the student must have a minimum grade point average of 3.0 overall and 3.2 in at least 22 hours of Zoology. Approval to undertake honors work must be secured in advance from the Departmental Honors Committee.

ZY 201 and 202 are prerequisites for all courses in the department unless otherwise indicated.

ZY 201—INTRODUCTORY ZOOLOGY LABORATORY. 4 credits
The anatomy, physiology, life history, and behavior of representative invertebrate and vertebrate animals.

ZY 202—PRINCIPLES OF ANIMAL BIOLOGY. 5 credits
Prerequisites: ZY 201, CY 202 or 211. Considerations of historical development of the science; cell structure and function; replication of molecules, cells and individuals; inheritance, evolution and homeostasis; and complex inter-relationships among organisms and their environments.

ZY 306—VERTEBRATE ZOOLOGY 1. 5 credits
The evolution, taxonomy, ecology and behavior of vertebrates. Emphasis is on the adaptations of wild animals to their natural habitats.

ZY 307—VERTEBRATE ZOOLOGY 2. 4 credits
Prerequisite: ZY 306. The laboratories include field work in representative local habitats, and individual projects.

ZY 308—INVERTEBRATE ZOOLOGY. 5 credits

The structure, taxonomy, evolutionary relationship and life histories of the invertebrate animals.

*ZY 309—COMPARATIVE VERTEBRATE ANATOMY. 5 credits

Lectures on the morphology of the various chordate animals are accompanied by laboratory work dealing with a selected series of chordates.

*ZY 310—EMBRYOLOGY. 5 credits

Lectures dealing with the analysis of development of selected invertebrates and vertebrates, accompanied by laboratory work dealing with the sea urchin, frog, chick, and pig.

*ZY 309 and 310 are not sequential. Advisors are requested to assist in keeping enrollments in these courses approximately equal each quarter by assigning half of their advisees who plan to take both courses to ZY 309 and the other half to ZY 310.

ZY 311—FUNCTIONAL MORPHOLOGY. 4 credits

An examination of structural adaptations for the support, locomotion, feeding, orientation and reproduction in both vertebrate and invertebrate animals.

ZY 318—GENERAL ENTOMOLOGY. 4 credits

(Identical with EY 318.) Prerequisite: ZY 201, 202 or equivalent. A general course in insect biology that considers phylogeny, anatomy, physiology, ecology and behavior or insects in the context of organic evolution. Emphasis is on processes and principles.

ZY 320—PARASITOLOGY FOR MEDICAL TECHNICIANS. 4 credits

Prerequisite: ZY 202 or equivalent. Life cycles and morphology of the helminth and protozoan parasites. Emphasis on diagnostic procedures and parasite identification. Limited to medical technology students.

ZY 321—EVOLUTION TODAY. 3 credits

Prerequisite: CBS 261-262. Evolutionary theories and their historical development. Available for students in the social sciences and the humanities.

ZY 322—READINGS IN THE BIOLOGICAL SCIENCES. 3 credits

Prerequisite: 1 year of biological sciences. Readings in selected contributions of biology to human thought and welfare and their application, both in the sciences and to everyday life. Available for the students in the social sciences and the humanities.

ZY 323—NATURAL HISTORY OF ANIMALS. 5 credits

Prerequisite: CBS 261-262 or equivalent. Environmental orientation, sensory adaptations, communications, modes of locomotion, and methods of food getting of invertebrates and vertebrates.

ZY 325—GENETICS. 5 credits

An introduction to the data and methods of genetics with special reference to their bearing on the problems of speciation and organic evolution.

ZY 411 (Identical with BTY 471)—PREPARATION TO TEACH THE AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES BIOLOGY COURSE. 3 credits

Prerequisite: Certificate to teach high school biology. Lectures, demonstrations and laboratory exercises designed to prepare high school teachers to use the methods and materials developed by the Biology Curriculum Study Committee of the A. I. B. S.

ZY 412 (Identical with BTY 472)—PREPARATION TO TEACH THE AMERICAN INSTITUTE OF BIOLOGICAL SCIENCES BIOLOGY COURSE. 3 credits

Prerequisite: Certificate to teach high school biology. The second half of ZY 411-412.

*Available for graduate major credit.

ZY 430—INDIVIDUAL STUDIES IN ZOOLOGY. 4 credits

Prerequisites: A 3.0 overall honor point average; a 3.0 honor point average in at least 24 hours of approved major courses in zoology, and consent of instructor and head of the department. Qualified students and the instructor concerned may choose a particular topic or problem for study. May be repeated for full credit.

ZY 475—THE HUMAN NERVOUS SYSTEM. 4 credits

Prerequisites: CBS 261-262 or equivalent. Selected correlations between human neuroanatomy and neurophysiology, including comparisons with other vertebrates. Human and other vertebrate material will be considered in the laboratory. Designed for students of the sciences and humanities. Lectures, demonstrations and laboratory.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ZY 505—GENERAL ECOLOGY. 5 credits*

Prerequisites: CY 213 and an introductory course in statistics are recommended. Ecological factors and organization in terrestrial, freshwater and marine environment. Field work is an examination of representative biotic communities of the Gainesville area.

ZY 507 (Identical with GY 507)—VERTEBRATE PALEONTOLOGY. 4 credits*

Prerequisite: ZY 309 or GY 304. Evolutionary history of major vertebrate groups with special emphasis on principles of prehistoric investigation.

ZY 516 (Identical with VY 516)—ANIMAL PARASITOLOGY. 5 credits*

Prerequisite: CY 213 or equivalent. An ecological consideration of the animal organisms, especially the Protozoa and worms, which cause disease in man and the higher vertebrates.

ZY 521—COMPARATIVE HISTOLOGY. 5 credits*

Prerequisite: ZY 308 or 309. The comparative aspects of both structure and function of vertebrate and invertebrate tissues.

ZY 542 (Identical with ASC 542)—HISTORY OF THE BIOLOGICAL SCIENCES. 3 credits*

The origins and growth and development of the major biological sciences and their influences upon society. Junior standing required for admission to the course.

ZY 545—PHYSIOLOGICAL GENETICS. 4 credits*

Prerequisite: ZY 325 or equivalent. The nature of the gene, and its role in metabolism, specificity, differentiation, and morphological patterns.

ZY 551 (Identical with BTY 551)—CYTOLOGY. 5 credits*

Prerequisites: 1 year General Zoology or its equivalent, advanced standing and consent of the instructor. The study of the microscopic components of plant and animal cells. Considerations will be made of the structure, chemical constitution and function of the cell wall, protoplasm, cytoplasmic constituents and nucleus. The role of chromosome number abberations in speciation and evolution, and the problems related to abnormal growth and senescense will also be discussed.

ZY 570—CELLULAR PHYSIOLOGY. 5 credits*

Prerequisites: Organic Chemistry and General Physics. Calculus strongly recommended. The biophysics and biochemistry of cellular homeostasis and function.

ZY 571—TECHNIQUES IN CELLULAR PHYSIOLOGY. 1 credit*

Prerequisite or corequisite: ZY 570. The instrumentation and methodology of qualitative and quantitive research techniques in molecular and cellular biology.

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*Available for graduate major credit.

ZY 574—TISSUE AND ORGAN PHYSIOLOGY. 5 credits*

Prerequisites: Organic Chemistry and General Physics. The physiology of the major organ systems of animals. May be taken without ZY 570.

ZY 575—COMPARATIVE NEUROPHYSIOLOGY. 3 credits*

Prerequisite: ZY 570 or equivalent. ZY 308 recommended. Membrane potentials, axonal conduction, varieties of synaptic transmission, and general patterns of neural organization in selected vertebrates and invertebrates.

ZY 577—NEUROPHYSIOLOGY LABORATORY. 2 credits*

Prerequisite: ZY 575 (which may be taken concurrently). Consideration of a variety of vertebrate and invertebrate preparations using modern techniques for stimulation of and electrical recording from nervous tissue. Selected histological techniques. Some laboratory sessions will be set aside for original inquiry.

ZY 579—THE BIOLOGY OF MARINE ANIMALS. 4 credits*

Prerequisites: CY 373, PS 213, ZY 505. The functioning and interrelationships of marine animals considered from the standpoint of comparative physiology.

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*Available for graduate major credit.

GRADUATE COURSES

ZY 605—(Identical with BLY 605)—TROPICAL BIOLOGY-AN ECOLOGICAL APPROACH. 12 credits
ZY 607 (Identical with GY 607)—ANCIENT VERTEBRATE FAUNAS. 4 credits
ZY 609—ZOOGEOGRAPHY. 3 credits
ZY 610—(Identical with BLY 610)—ADVANCED TROPICAL ZOOLOGY. 12 credits
ZY 612—MARINE ECOLOGY. 5 credits
ZY 624—HELMINTHOLOGY. 5 credits
ZY 625—PROTOZOOLOGY. 5 credits
ZY 626—COMMUNITY ECOLOGY. 5 credits
ZY 628—LIMNOLOGY. 5 credits
ZY 629—SEMINAR IN ECOLOGY. 2 credits
ZY 630—INDIVIDUAL STUDIES IN ZOOLOGY. 4 credits
ZY 632—ADVANCED INVERTEBRATE ZOOLOGY. 4 credits
ZY 633—PRINCIPLES OF SYSTEMATIC ZOOLOGY. 3 credits
ZY 641—COMPARATIVE PHYSIOLOGY. 5 credits
ZY 642—PHYSIOLOGICAL ECOLOGY. 5 credits
ZY 647—EXPERIMENTAL EMBRYOLOGY. 3 credits
ZY 648—EXPERIMENTAL EMBRYOLOGY LABORATORY. 2 credits
ZY 649—SPECIAL TOPICS IN EMBRYOLOGY. 2 credits. Maximum 6 credits
ZY 651—ICHTHYOLOGY. 5 credits
ZY 652—HERPETOLOGY. 5 credits
ZY 653—MAMMALOGY. 5 credits
ZY 654—ORNITHOLOGY. 4 credits
ZY 663 (Identical with MED 663, BCY 663, and VY 663)—PARASITIC DISEASES OF THE TROPICS AND SUBTROPICS. 5 credits
ZY 664—TOPICS IN GENETICS. 2 to 4 credits. Maximum 12 credits
ZY 665—ECOLOGICAL GENETICS. 5 credits
ZY 666—BIOMETRICS. 3 credits
ZY 671—ETHOLOGY 1. 4 credits
ZY 672—ETHOLOGY 2. 4 credits
ZY 673—SPECIAL TOPICS IN ETHOLOGY. 3 credits. Maximum 9 credits
ZY 675—SEMINAR IN COMPARATIVE NEUROLOGY. 3 credits Maximum 9 credits
ZY 690—SPECIAL TOPICS IN ZOOLOGY. 4 credits Maximum 12 credits
ZY 697—SUPERVISED RESEARCH. 1 to 5 credits
ZY 698—SUPERVISED TEACHING. 1 to 5 credits
ZY 699—MASTER'S RESEARCH. 1 to 15 credits
ZY 799—DOCTORAL RESEARCH. 1 to 15 credits

The College of Business Administration

ACCOUNTING

BUSINESS ADMINISTRATION–GENERAL

ECONOMICS

FINANCE AND INSURANCE

MANAGEMENT AND BUSINESS LAW

MARKETING

REAL ESTATE AND URBAN LAND STUDIES

Accounting

INSTRUCTIONAL STAFF 1969-70

Stone, W. E., *Chairman;* Anderson, C. A.; Benninger, L. J.; Chambers, R. J.; Cole, F. M.; Corbett, B. D.; DaVault, J. W.; Deinzer, H. T.; Ellett, J. S. II; Fane, G. R.; Goldberg, L.; Hallbauer, R. C.; Immelman, A. P.; Jenkins, L. J.; Lacouture, J. P.; Laurey, D. G.; Louderback, J. G. III; McCabe, J. W.; Most, K. S.; O'Doherty, B. A.; Ray, D. D.; Smith, M. P.; Stevens, W. T.; Thorne, J. F.; Viljoen, J. H.; Whitehurst, F. D.; Wood, E. A.; Yu, S. C.

Courses numbered 300 or higher are open only to students with junior standing or above. Courses numbered below 300 are not open to students with 4BA classification. Note, in addition, the specific prerequisites for certain courses.

ATG 201—ELEMENTARY FINANCIAL ACCOUNTING. 5 credits

Accounting as a device for measurement of business activity. Assumptions underlying accounting; recording and reporting transactions; preparation, interpretation, and analysis of financial statements.

ATG 203—ELEMENTARY MANAGERIAL ACCOUNTING. 3 credits

Prerequisite: ATG 201. Accounting for cost reporting and control. Reports, statements and analytical tools used by management. Especially recommended for students not intending to be accounting majors.

ATG 204—ELEMENTARY NON-PROFIT ACCOUNTING. 3 credits

Prerequisite: ATG 201. A study of accounting principles and reporting practices of non-profit oriented organizations. Especially recommended for students intending to become accounting majors.

ATG 301—INTERMEDIATE ACCOUNTING. 5 credits

Prerequisite: ATG 202 or ATG 203. A study of the assumptions underlying income determination and the theories of matching costs with revenue. Asset acquisition and evaluation.

ATG 302—INTERMEDIATE ACCOUNTING. 5 credits

Prerequisite: ATG 301. A continuation of ATG 301.

ATG 305—INDUSTRIAL ACCOUNTING. 4 credits

Prerequisite: ATG 203 or ATG 204. Interpretation and control of costs. Various systems of cost accumulation and organization for analysis and control. Standards and simple variance analysis.

ATG 401—ACCOUNTING FOR MANAGEMENT. 4 credits

Prerequisite: ATG 305. Interpretative accounting for management purposes.

ATG 405—AUDITING AND INTERNAL CONTROL. 4 credits

Prerequisite: ATG 302. A study of auditing standards and procedures and their relation to principles and systems of internal control of business operations.

ATG 407—INCOME TAX ACCOUNTING. 3 credits

Prerequisite: ATG 301. Federal income tax law and related management and accounting problems.

ATG 408—ADVANCED FEDERAL TAX ACCOUNTING. 3 credits

Prerequisite: ATG 407. Management and accounting problems encountered by various entities under federal tax law.

ADVANCED ACCOUNTANCY COURSES

Courses in the 500 group are available to undergraduate students with the approval of their advisor. The fifth year advanced accountancy degree (AAB) requires

successful completion of at least 22 credits of advanced accountancy courses chosen from the 500 courses listed below.

ATG 501—ACCOUNTING THEORY AND ITS APPLICATION. 4 credits
Prerequisite: Senior status. Current developments in generally accepted accounting principles and their relevance to the solution of practical problems. Special consideration of current accounting topics.

ATG 502—ACCOUNTING THEORY. 3 credits*
Prerequisite: Permission of advisor. Development of accounting concepts and principles.

ATG 503—COST ACCOUNTING THEORY AND APPLICATIONS. 4 credits*
Prerequisite: Permission of advisor. Advanced problem solving covering various phases of cost accounting. An introduction to cost accounting literature.

ATG 504—FEDERAL INCOME TAXATION OF BUSINESS ORGANIZATIONS. 3 credits*
Prerequisite: ATG 408. Applications of federal income tax concepts to the formation, operation, liquidation, and reorganization of partnerships and corporations.

ATG 505—FEDERAL INCOME TAX PLANNING. 3 credits*
Prerequisite: ATG 504. Federal income tax planning for the individual, partnership, estate, trust and corporation.

ATG 506—C.P.A. AUDITING PRACTICE. 3 credits
Prerequisite: ATG 405. The ethics, responsibilities and specialized functions of the certified public accountant and his changing role in society. A study of recent auditing developments.

ATG 507—ACCOUNTING SERVICES TO MANAGEMENT. 3 credits
Prerequisite: Permission of advisor. Role of the C.P.A. as a consultant in various functions of his client's business and practical methods and techniques used in rendering these services.

ATG 508—ACCOUNTING SYSTEMS AND DATA PROCESSING. 4 credits
Prerequisite: Permission of advisor. Design and operation of accounting systems in business and industry. Data processing by electro-mechanical and electronic computer systems.

ATG 509—ACCOUNTING PROBLEMS. 4 credits
Prerequisite: ATG 302. Analysis of principles and techniques involved in the solution of advanced accounting problems faced by public accountants.

ATG 510—ACCOUNTING PRINCIPLES AND ANALYSIS. 5 credits
Functions and underlying principles of accounting are stressed and procedural details omitted. Emphasis is upon the analysis of financial condition and business operations through an understanding of accounting statements. May not be taken by students who have completed ATG 201 and ATG 203. Registration limited to graduate students or by special permission of the department.

ATG 517—PUBLIC ADMINISTRATION ACCOUNTING. 4 credits
Prerequisite: ATG 302 and senior standing or permission of advisor. A critical analysis of fund accounting, reporting practices, and the accounting implications of budgeting processes for public and quasi-public organizations.

*Available for graduate major credit.

GRADUATE COURSES

ATG 601—DEVELOPMENT OF THOUGHT IN ACCOUNTING THEORY. 5 credits

ATG 602—ACCOUNTING INFORMATION FOR EXTERNAL USERS. 5 credits

ATG 603—SOCIAL AND ECONOMIC ACCOUNTING. 5 credits
ATG 604—ACCOUNTING AND ANALYTICAL METHODS 5 credits
ATG 605—THE FEDERAL INCOME TAX: FUNCTIONAL ANALYSIS. 5 credits
ATG 607—ACCOUNTING THEORY AS RELATED TO MANAGERIAL DECISION MAKING. 5 credits
ATG 608—INTERDISCIPLINARY CONSIDERATIONS IN ACCOUNTING THEORY DEVELOPMENT. 5 credits
ATG 630—INDIVIDUAL WORK IN ACCOUNTING. 1 to 5 credits Maximum 10 credits
ATG 698—SUPERVISED TEACHING OF ACCOUNTING. 3 credits Maximum 9 credits
ATG 699—MASTER'S RESEARCH. 1 to 15 credits

Business Administration—General

Courses numbered below 300 are not open to students with BA classification.

BS 101—BUSINESS IN A DYNAMIC SOCIETY. 3 credits
Orientation to the study of business administration. Environmental factors, forces of change; analysis of business structure and functions; current and emerging problems.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

BS 540—COMPUTER BASED BUSINESS MANAGEMENT. 4 credits*
Prerequisites: Senior standing in Business Administration and MGT 340, or consent of instructor. Principles of data processing management and the application of computers in solving business problems.

BS 591—MATHEMATICAL METHODS AND THEIR APPLICATION TO BUSINESS AND ECONOMIC ANALYSIS. 5 credits*
Matrix algebra and calculus applied to business and economic analysis. Required of M.B.A. candidates who have not had mathematics through calculus.

*Available for graduate major credit.

GRADUATE COURSES

For admission to courses listed below, the student must have been admitted to the Graduate School and normally should have undergraduate courses in fields pertinent to the graduate courses selected; or where necessary, special arrangements may be made with the approval of the dean.

BS 610—MANAGERIAL ACCOUNTING. 4 credits
BS 664—MANAGERIAL STATISTICS. 4 credits
BS 671—HUMAN RELATIONS IN BUSINESS. 4 credits
BS 679—BUSINESS POLICY. 4 credits
BS 690—BUSINESS RESEARCH AND REPORTS. 2 credits
BS 691—BUSINESS RESEARCH AND REPORTS. 2 credits
BS 697—SUPERVISED RESEARCH. 1 to 5 credits
BS 698—SUPERVISED TEACHING. 1 to 5 credits
BS 799—DOCTORAL RESEARCH. 1 to 15 credits

Economics

INSTRUCTIONAL STAFF 1969-70

Donovan, C. H., *Chairman;* Anderson, M. D.; Blodgett, R. H.; Bradbury, R. W.; Eutsler, R. B.; Frazer, W. J.; French, R. E.; Fristoe, C. W.; Geithman, D. T.; Goddard, F. O.; Goffman, I. J.; Guy, C. E.; Hurff, G. B.; Jackson, E. L.; Jones, J. F.; Keig, N. G.; Koefod, P. E.; Lanzillotti, I. F.; Mahar, D. J.; Morrall, J. F.; Perry, J. M.; Reber, S. R.; Roberts, P. E.; Tigadi, C. B.; Truett, D. B.; Tyler, W. G.; Vernon, J. R.; Vogel, R. J.

A departmental major in Economics in the College of Arts and Sciences must include ES 201, ES 202, ES 321, ES 401, ES 402, ES 414, ES 431, and STA 320, plus eight to thirteen additional credits (maximum of ten in one field) in economics to be approved by the departmental advisor.

Courses numbered below 300 are not open to students with 4BA classification. Courses numbered 300 and higher are open only to students with junior standing. Note, however, specific prerequisites for certain courses.

ES 201—BASIC ECONOMICS 1. 5 credits

The nature of economics, economic concepts and institutions; emphasis on the accounting, analytical, and policy aspects of national income and product, as well as public finance, money and banking, and international trade.

ES 202—BASIC ECONOMICS 2. 5 credits

Theories of production, determination of prices and distribution of income in regulated and unregulated industries. Attention is also given to the problems of industrial relations, monopolies, and to comparative economic systems.

ES 203—BASIC ECONOMICS A. 3 credits

The nature of economics, economic concepts and institutions; the accounting, analytical, and policy aspects of national income and product, public finance, and money and banking; comparative economic systems; economic development and growth.

ES 204—BASIC ECONOMICS B. 3 credits

Prerequisite ES 203. Theories of production, determination of prices in regulated and unregulated industries.

ES 205—BASIC ECONOMICS C. 3 credits

Prerequisites: ES 203 and ES 204. The distribution of income; international economics. Attention will be given to certain current economic problems.

ES 211—ECONOMIC HISTORY OF THE UNITED STATES. 4 credits

Industrial development of America; exploitation of natural resources; history of manufacturing, banking, trade, transportation, etc., the evolution of industrial centers; the factors contributing to the growth of the United States.

ES 300—ECONOMICS FOR TEACHERS. 3 credits

Not open to students who have taken ES 201 or ES 202. Designed for junior college and public school teachers. Basic economic concepts and institutions of private enterprise economic systems. Theory, measurement and problems of national income and economic growth. Comparison of main features of private enterprise and controlled economies.

ES 301—NATIONAL INCOME DETERMINATION AND POLICY. 3 credits

Prerequisites: ES 201-202. The basic determinants of national income, consumption, investment, employment, and prices. Emphasis placed upon the role of government in the attainment of national goals.

ES 302—PRICES AND MARKETS. 3 credits

Prerequisites: ES 201-202. The determination of prices and outputs of firms and industries under various market conditions. Reliance is placed upon both theory and application.

ES 321 (Identical with FI 321)—MONEY AND BANKING. 3 credits

Prerequisite: ES 301. Money systems and standards; factors determining money supply with emphasis on the role of commercial and central banks; relationships between money, prices, production and employment.

ES 331 (Identical with GPY 331)—PRINCIPLES OF RESOURCE UTILIZATION. 3 credits

Review of the natural and human resources of the United States; an intensive study of the wise and wasteful practices of exploitation and utilization of these resources. A study of the principles of conservation with special reference to the South. Course designated to satisfy resource certification for social studies teachers.

ES 341—INTERNATIONAL ECONOMICS. 5 credits

Prerequisites: ES 201-202. Theory of international trade, significance of geographic economic, social and political influences, current problems and tendencies in international trade and payments, tariffs, and other barriers to world trade, and national policies affecting foreign commerce.

ES 345—INDUSTRY AND TRADE OF LATIN AMERICA. 3 credits

The industrial importance of several Latin American countries; the development of the industries of each country, the volume and types of exports and imports as well as the trade practices and customs of these countries.

ES 351—TRANSPORTATION ECONOMICS. 5 credits

Prerequisite: ES 202. General survey of the significance, characteristics and major problems of inter-city transportation.

ES 354—PUBLIC UTILITY ECONOMICS. 3 credits

Prerequisite: ES 201-202. The nature, place and development of public service corporations; types of public control; valuation and ratemaking regulation of service, accounts, reports, and securities; combinations; public relations, public ownership.

ES 361—ECONOMIC AND BUSINESS STATISTICS. 4 credits

Prerequisites: STA 320, 10 Hrs. of mathematics. Simple, multiple and partial correlation, time series analysis, index numbers, and an introductory treatment of sample survey methods. Application of these tools to business and economic problems.

ES 372—LABOR PROBLEMS. 5 credits

Prerequisite: ES 202: Insecurity, wages and income, hours, substandard workers; industrial conflict, unionism in its structural and functional aspects, employee representation, employers' associations; labor legislation, settlement of industrial disputes.

ES 400—SENIOR SEMINAR IN ECONOMICS. 3 credits

Prerequisite: Senior major in economics and permission of advisor. May be repeated for credit with change of content for a maximum of 9 credits. Seminar in contemporary economic problems and issues. An intensive study of a specific area of public policy including current literature and research methods.

ES 401—MACRO-ECONOMIC THEORY. 5 credits

Prerequisite: ES 201. Theoretical determinants of aggregate employment, income, expenditures, and the price level. Classical and modern models are analyzed. Primarily designed for majors in economics.

ES 402—MICRO-ECONOMIC THEORY. 5 credits

Prerequisites: ES 201-202. Nature, scope, and purpose of economic analysis. Examines the theory of consumer behavior, production, costs, firm behavior, and the allocation of resources. Primarily designed for majors in economics.

ES 405—INTRODUCTION TO THE HISTORY OF ECONOMIC THOUGHT 5 credits

Prerequisite: Senior majors in Social Science. Leading ideas of the key contributors to the development of modern economic thought as set forth in their original

works, with attention to the historical context and problems from which these ideas have emerged.

ES 410—DEVELOPMENT OF MODERN WESTERN ECONOMY. 5 credits

An analytical study of the economic development of Western Europe and of the United States from the Commercial Revolution to the decline of British dominance in the world of economy.

ES 411—DEVELOPMENT OF MODERN WESTERN ECONOMY. 5 credits

A continuation of ES 410. From the incipient stage of U. S. leadership in the world economy to the present.

ES 414—UNITED STATES ECONOMIC DEVELOPMENT. 5 credits

Prerequisites: ES 301, ES 302, and STA 320. A study of American development from colonial times to the present, focussing on the sources of growth and institutional change. Emphasis on the analytical use of theory and statistics.

ES 418—ECONOMIC DEVELOPMENT. 3 credits

Prerequisites: ES 201 and 202. Problems, dynamics and policies of economic change and growth in the underindustrialized countries of the modern world. Empirical and theoretical case studies. Area study and formulation of development projects and programs.

ES 431—PUBLIC FINANCE. 3 credits

Prerequisite: ES 301, 302, or equivalent. Principles governing expenditures of modern government; sources of revenue; public credit; fiscal policy; principles and methods of taxation and financial administration.

ES 444—INTERNATIONAL ECONOMIC RELATIONS. 4 credits

The development of international economic policies; geographic, economic, social and political factors underlying contemporary international problems; economic and political methods employed by the leading commercial nations.

ES 449—COMPARATIVE ECONOMIC SYSTEMS. 4 credits

The economies of capitalism, socialism, communism, and fascism. The United States, Soviet Russia, England, Nazi Germany, and Fascist Italy are compared on the basis of industrial production, agriculture, exchange, credit and banking, income distribution, the status of labor, and international trade. Marxian Socialism is also considered briefly.

ES 455—GOVERNMENT CONTROL OF BUSINESS. 5 credits

Prerequisite: ES 201-202. The evolution of economic control; chief methods of effectuating governmental control; the relationship between government and non-public utility monopolies; Federal Trade Commission control of competitive practices; a critical appraisal of recent developments in the field of government control.

ES 469—ANALYSIS AND FORECASTING OF GENERAL BUSINESS FLUCTUATIONS. 3 credits

Prerequisite: STA 320. Mathematical and statistical theory of the relationship of important variables in the business cycle, such as profits, the price level, wages, national income, employment, savings and investment. Application of this theory to business forecasting.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ES 502—THE PRICE SYSTEM. 5 credits

The determination of prices in a market economy; their role in allocating consumer and producer goods and in distributing incomes. Efficiency of markets and evaluation of public policies designed to improve efficiency.

ES 513—ECONOMIC AND SOCIAL HISTORY OF RUSSIA. 3 credits*

Prerequisites: CSS 111 and either HY 331 or 332 or their equivalents. A survey from Tripolye to the Soviet Union. The development of agriculture, industry and trade and their institutional manifestations; growth theory and conditions of economic growth.

ES 521—CENTRAL BANKING AND MONETARY POLICY. 5 credits*

Prerequisite: ES 321. A critical study of the relationship between the Federal Reserve System, the money market, governmental finance, business fluctuations, and the internal and external value of money in the United States.

ES 531—CENTRAL GOVERNMENT FINANCE. 5 credits*

Prerequisite: ES 201-202. Economic effects of public expenditures; war finance; personal income and estate taxes; corporate income and profit taxes; excise taxes, debt problems.

ES 535—STATE AND LOCAL FINANCE. 5 credits*

Prerequisite: ES 201-ES 202. Allocation of government functions and resources; property taxation; sales taxes, highway finance, business taxation; debt financing and control. Emphasis on Florida problems.

ES 536—GOVERNMENT BUDGETING AND FINANCIAL ADMINISTRATION. 3 credits*

Prerequisite: ES 431 and PCL 201. The budget process at various levels. Analysis of the operating behavior of governments in managing expenditure, debt, budgets, records and reports.

ES 543—FOREIGN EXCHANGE AND INTERNATIONAL FINANCIAL INSTITUTIONS. 3 credits*

Prerequisite: ES 321. A study of the theoretical and practical aspects of foreign exchange.

ES 545—FINANCIAL INSTITUTIONS AND FISCAL POLICIES OF SELECTED LATIN AMERICAN COUNTRIES. 3 credits*

Public finances, money systems, and banking policies of representative countries of Latin America.

ES 547—CONTEMPORARY ECONOMIC PROBLEMS IN SUB-SAHARA AFRICA. 3 credits*

Current developments in production, trade, and transportation, with emphasis on development plans in various countries.

ES 549—COMPARATIVE ANALYSIS OF ECONOMIC SYSTEMS. 4 credits*

Prerequisite: ES 449 or consent of instructor. Theoretical and empirical study of contemporary societal economic systems of market, command, and customary types. Institutional bases, ordering principles, structure and organization, properties and operating characteristics, statics and dynamics, and the economics and methods of analysis of main types of economic systems.

ES 561—ECONOMETRIC MODELS AND METHODS 1. 5 credits*

Introduction to econometrics, including a survey of the classical econometric models as well as the scope and method of econometrics. Emphasis on techniques and their uses.

ES 562—ECONOMETRIC MODELS AND METHODS 2. 5 credits*

ES 572—ECONOMICS OF THE LABOR MARKET. 5 credits*

Prerequisite: ES 372. An intensive analysis of the economics of the labor market; theoretical and practical aspects of wage determination; the impact of collective bargaining on wages, employment, and prices; the economic effects of legislation dealing with the operating of the labor market.

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*Available for graduate major credit.

ES 581—URBAN ECONOMICS. 5 credits*

Prerequisite: ES 201-202, ES 431, PCL 202, or equivalent. Economic analysis of urbanization and regional interdependence. Applicability of location theory and other economic analysis. Criteria for determining public expenditures and allocating costs in urban areas.

ES 585—ECONOMICS OF HUMAN RESOURCE DEVELOPMENT. 3 credits*

Prerequisite: ES 302. The capital concept applied to human resources. Effects of education, health, population policies, and discrimination on the stock of human capital. Role of human capital in economic development.

ES 591—MASTERPIECES IN SOCIAL SCIENCES 1. 4 credits*

Prerequisite: Senior standing. (Identical with HY 591, PCL 591 and SY 591.) For advanced students with background work in the social sciences who have approval of their major adviser and the course chairman. Reading of classics in economics, history, political science, sociology and cultural anthropology.

ES 592—MASTERPIECES IN SOCIAL SCIENCES 2. 4 credits*

Prerequisite: Senior standing. The second part of the course ES 591-592-593. (Identical with HY 592, PCL 592 and SY 592.)

ES 593—MASTERPIECES IN SOCIAL SCIENCES 3. 4 credits*

Prerequisite: Senior standing. The third part of the course ES 591-592-593. (Identical with HY 593, PCL 593 and SY 593.)

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* Available for graduate major credit.

GRADUATE COURSES

For admission to courses listed below, the student must have been admitted to the Graduate School, and normally should have had undergraduate courses in fields pertinent to the graduate courses selected; or where necessary, special arrangements may be made with the approval of the department head.

Though no graduate major may be completed without adequate course work on the 600 or higher level, certain undergraduate courses in economics are available for graduate credit as a part of a candidate's major. These are: ES 410 and ES 411—Development of Modern Western Economy; ES 455—Government Control of Business; ES 469—Analysis and Forecasting of General Business Fluctuations; ES 513—Economic and Social History of Russia; ES 521—Central Banking and Monetary Policy; ES 531—Central Government Finance; ES 535—State and Local Finance; ES 543—Foreign Exchange and International Financial Institutions; ES 545—Financial Institutions and Fiscal Policies of Selected Latin American Countries; ES 547—Contemporary Economic Problems in the Sub-Sahara Africa; ES 561—Econometrics; ES 572—Economics of the Labor Market; ES 591—Masterpieces in Social Sciences 1; ES 592—Masterpieces in Social Sciences 2; ES 593—Masterpieces in Social Sciences 3.

ES 601—MACRO-ECONOMIC THEORY. 5 credits
ES 602—PRICE THEORY. 5 credits
ES 603—SOCIAL AND ECONOMIC ACCOUNTING. 5 credits
ES 604—CAPITAL THEORY, PRODUCTION, AND GROWTH 5 credits
ES 605—THE DEVELOPMENT OF ECONOMIC THOUGHT. 5 credits
ES 606—THE DEVELOPMENT OF ECONOMIC THOUGHT. 5 credits
ES 608—PRESENT-DAY SCHOOLS OF ECONOMIC THOUGHT. 5 credits
ES 610—THE AMERICAN ECONOMY TO 1860. 5 credits
ES 611—THE AMERICAN ECONOMY SINCE 1860. 5 credits
ES 614—THE UNITED STATES IN THE WORLD ECONOMY (1783-1960). 5 credits
ES 615—ECONOMICS OF BUSINESS DECISION. 5 credits
ES 616—ECONOMIC ENVIRONMENT OF BUSINESS. 4 credits
ES 617—THEORY OF ECONOMIC DEVELOPMENT. 5 credits

ES 618—ECONOMIC DEVELOPMENT SEMINAR. 5 credits
ES 621—MONETARY THEORY. 5 credits
ES 622—MONEY, PRICES, AND BUSINESS CYCLES. 5 credits
ES 625—SEMINAR IN MONETARY ECONOMICS 5 credits
ES 630—INDIVIDUAL WORK IN ECONOMICS. 1 to 9 credits
Maximum 9 credits
ES 631—THEORY OF PUBLIC FINANCE. 5 credits
ES 633—FISCAL AND MONETARY POLICY. 5 credits
ES 635—WELFARE ECONOMICS. 5 credits
ES 641—THEORY OF INTERNATIONAL TRADE. 5 credits
ES 644—INTERNATIONAL ECONOMIC RELATIONS. 5 credits
ES 645—THE ECONOMY OF SPANISH LATIN AMERICA. 5 credits
ES 646—THE ECONOMY OF BRAZIL. 5 credits
ES 647—FINANCIAL AND FISCAL INSTITUTIONS OF SELECTED SUB-SAHARAN COUNTRIES. 5 credits
ES 649—ECONOMIC SYSTEMS SEMINAR. 5 credits
ES 654—ECONOMICS OF REGULATED INDUSTRIES. 5 credits
ES 655—INDUSTRIAL ORGANIZATION AND SOCIAL CONTROL. 5 credits
ES 657—PROBLEMS IN SOCIAL CONTROL. 5 credits
ES 660—NONSTOCHASTIC ECONOMETRIC MODELS. 4 credits
ES 661—ECONOMETRIC METHODS 1. 3 credits
ES 662—ECONOMETRIC METHODS 2. 3 credits
ES 665—MATHEMATICAL ECONOMICS 1. 5 credits
ES 666—MATHEMATICAL ECONOMICS 2. 5 credits
ES 669—PROBLEMS IN STATISTICS AND BUSINESS FORECASTING. 5 credits
ES 672—ORGANIZED LABOR IN THE UNITED STATES. 5 credits
ES 674—LABOR ECONOMICS. 5 credits
ES 692—NEO-CLASSICAL ECONOMICS. 5 credits
ES 699—MASTER'S RESEARCH. 1 to 15 credits
ES 799—DOCTORAL RESEARCH. 1 to 15 credits

Finance and Insurance

INSTRUCTIONAL STAFF 1969-70

Matthews, C. A., *Chairman;* Fredericks, C. M.; Hipp, J. E.; Howard, W. M.; Mandell, J. H.; McCollough, W. A.; McFerrin, J. B.; Nelson, R. E.; Richardson, J. G.; Schmidlkofer, M. A.; Scott, D. F.; Stewart, J. L.; Tysseland, M. S.; Van-Landingham, M.; Vought, F. B.; Wassom, J. C.

FI 321 (Identical with ES 321)—MONEY AND BANKING. 3 credits

Prerequisite: ES 301. Money systems and standards; factors determining money supply with emphasis on the role of commercial and central banks; relationships between money, prices, production and employment.

FI 322—FINANCIAL INSTITUTIONS. 5 credits

A study of the operation of financial institutions, interrelationship between the institutions and their roles in the economic process. Cannot be used for credit for BSBA degree.

FI 324—INVESTMENTS FOR INDIVIDUALS. 4 credits

Designed for the non-Business Administration student, this course deals with the principal investment problems the individual faces. Cannot be used for credit for BSBA degree.

FI 326—BUSINESS FINANCE. 5 credits

Prerequisites: ATG 201-203 or 204. The acquisition and management of funds by businesses.

FI 360—RISK AND INSURANCE. 4 credits

Identification of various types of risk; principles underlying selection of appropriate means of handling risks; analysis of insurance as a principle means; organization and operation of insurance companies.

FI 361—PROPERTY INSURANCE—FIRE AND MARINE INSURANCE. 4 credits

Offered by correspondence only. The broad, basic principles underlying Fire and Marine Insurance.

FI 362—PROPERTY INSURANCE. 4 credits

Offered by correspondence only. A continuation of FI 361 dealing with casualty insurance, bonds, and agency management.

FI 363—LIFE AND HEALTH INSURANCE. 4 credits

Prerequisite: FI 360. Use of insurance to protect against economic loss caused by termination of earning capacity: benefits, underwriting, rate-making and legal doctrines.

FI 365—PROPERTY AND LIABILITY INSURANCE I. 5 credits

Prerequisite: FI 360. A study of the broad principles applied to major property and liability hazards and policy contracts. Potential direct and indirect loss of property, multiple line insurance, and functional aspects such as underwriting, ratemaking and claims handling.

FI 366—PROPERTY AND LIABILITY INSURANCE II. 5 credits

Prerequisite: FI 360. A study of the broad principles applied to major property and liability hazards and policy contracts. Liability exposures and related insurance coverages, including automobile, dishonesty insurance, and suretyships. The functional aspects such as underwriting, ratemaking and claims handling.

FI 420—MANAGEMENT OF BANK FUNDS. 5 credits

Prerequisite: FI 321. Policies, practices and problems of commercial bank management: loans and discounts, investments, fiduciary and other services, the money market, etc.

FI 422—INVESTMENTS. 4 credits

Prerequisite: FI 326. Nature of investments; investment policies; analysis of securities; the mechanics and mathematics of security purchases; factors influencing security prices, and the nature of the New York Stock Exchange.

FI 430—INDEPENDENT RESEARCH. 1 to 5 credits

Prerequisite: Senior standing and previous work in the area selected for research. Admission is by the consent of the instructor with approval of the chairman of the department. A written report or reports will be required.

FI 462—GROUP INSURANCE AND PENSION PLANS. 4 credits

Prerequisite: FI 360 or FI 363. Group life and health insurance; pension and profit sharing plans.

FI 487—RISK MANAGEMENT. 5 credits

Prerequisite: FI 360 or consent of instructor. Risk management philosophies, concepts, and principles including the application of various alternatives to handling pure risks. The use of insurance surveys and case studies are emphasized.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

FI 524—INVESTMENT ANALYSIS. 5 credits*

Prerequisite: FI 422. The analysis of public utility, railroad, and general corporate securities; the supervision of security investments; factors influencing security values.

*Available for graduate major credit.

FI 528—CORPORATION FINANCE. 5 credits*

Prerequisite: FI 326. The sale of corporation securities; problems incident to increased capital investment; combination; business failure and financial reconstruction.

FI 584—LEGAL ASPECTS OF INSURANCE. 3 credits*

The essentials of the law peculiarly applicable to the business of insurance including Florida's statutory regulation thereof.

FI 586—ESTATES, TRUSTS AND INSURANCE. 4 credits*

Prerequisite: FI 360. Estate Planning; coordination of life insurance with other assets; living and testamentary trusts; life insurance trusts; wills; guardianships; and tax aspects of estate planning.

FI 590—BUSINESS FINANCIAL MANAGEMENT. 5 credits

Analysis of business financing and investing decisions. Required of, but not limited to, all candidates for the Master of Business Administration degree who have not had a basic business finance course.

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*Available for graduate major credit.

GRADUATE COURSES

For admission to courses listed below, the student must have been admitted to the Graduate School and normally should have had undergraduate courses in fields pertinent to the graduate courses selected; or where necessary, special arrangements may be made with the approval of the department head.

Though no graduate major may be completed without adequate course work on the 600 or higher level, certain undergraduate courses in finance and insurance are available for graduate credit as a part of a candidate's major. These are FI 420—Management of Bank Funds; FI 524—Investment Analysis; FI 528—Corporation Finance; FI 584—Legal Aspects of Insurance; and FI 586—Estates, Trusts and Insurance.

FI 620—PROBLEMS IN COMMERCIAL BANKING. 5 credits
FI 622—SEMINAR IN INVESTMENTS. 5 credits
FI 625—MONEY AND CAPITAL MARKETS. 5 credits
FI 627—PROBLEMS IN CORPORATION FINANCE. 5 credits
FI 628—CENTRAL BANKING, POLICIES AND PROBLEMS. 5 credits
FI 629—INTERNATIONAL FINANCE: MONETARY SYSTEMS. 5 credits
FI 630—INDIVIDUAL WORK IN FINANCE. 2 to 5 credits. Maximum 8 credits
FI 662—SEMINAR IN LIFE INSURANCE. 5 credits
FI 665—SEMINAR IN PROPERTY AND LIABILITY INSURANCE. 5 credits
FI 668—PROBLEMS IN RISK MANAGEMENT. 3 credits
FI 699—MASTER'S RESEARCH. 1 to 15 credits

Management and Business Law

INSTRUCTIONAL STAFF 1969-70

Wilmot, W. V., *Chairman;* Backmeyer, T.; Berry, W.; Boe, W.; Bryant, M.; Butler, A.; Champion, J. M.; Dinter, H.; Dixon, J.; Fox, W. M.; Hill, W. A.; James, J. H.; LoPucki, L. M.; Maddox, R.; Menke, W. W.; Oliver, C., Jr.; Pickhardt, R. C.; Ray, J. B.; Thomanek, E.; Wallace, J. B., Jr.; Wyatt, J. W.

Courses numbered 300 or higher are open only to students with junior standing or above. Note, however, the specific prerequisites for certain courses.

MGT 310—PRINCIPLES OF MANAGEMENT. 4 credits
Fundamentals of management underlying the solution of problems of organization and operation of business enterprises.

MGT 340—INTRODUCTION TO COMPUTER CONCEPTS. 1 credit
Prerequisite: MS 204 and STA 320 or consent of instructor. Program languages, flow charts, and business applications of computers.

MGT 350—PERSONNEL MANAGEMENT. 4 credits
A comparison and evaluation of public and private personnel practices and techniques of recruiting, selecting, transferring, promoting, classifying, and training workers. Not open to management majors.

MGT 355—HUMAN RELATIONS IN ADMINISTRATION. 4 credits
The individual, interpersonal and group relations, and intergroup and organizational problems in business. Open only to Business Administration students.

MGT 401—BUSINESS LAW. 5 credits
Introduction to Law, Contracts, Sales, Agency. Relevant provisions of the Uniform Commercial Code.

MGT 402—BUSINESS LAW. 4 credits
Prerequisite: MGT 401. Negotiable Instruments, Bailments, Documents of Title, Security Devices, Partnership, Corporations. Relevant provisions of the Uniform Commercial Code.

MGT 403—BUSINESS LAW. 4 credits
Prerequisite: MGT 401. Real and Personal Property, Real Estate Mortgages, Landlord and Tenant, Mechanics' Liens, Wills and Decedents' Estates, Trusts, Insurance, Suretyship, Bankruptcy. Synthesis of areas of business law.

MGT 410—PRINCIPLES OF ORGANIZATION. 4 credits
Prerequisite: MGT 310. The process of combining the factors of production through a functional structure to achieve enterprise objectives.

MGT 430—INTERNATIONAL MANAGEMENT. 4 credits
Prerequisite: MGT 310. The managerial problems of planning, organization and control in firms engaging in international business.

MGT 450—PROBLEMS IN PERSONNEL MANAGEMENT. 4 credits
Prerequisite: MGT 410 or consent of instructor. Personnel practices and interpersonal relationships involved in managing employees.

MGT 460—COLLECTIVE BARGAINING. 4 credits
Prerequisite: MGT 450 or consent of instructor. The practice and techniques of collective bargaining with respect to the inter-relationships of the individual worker, the union, the employer, and the general public.

MGT 470—MANAGERIAL OPERATIONS ANALYSIS 1. 4 credits
Prerequisites: MS 204 and 6 credits in statistics. Introductory survey of input-output analysis, linear programming, and the theory of games and their application in business decision-making.

MGT 480—BUSINESS POLICIES. 4 credits
Business policies correlating the functions of sales, procurement, personnel and finance in various industries. Open only to seniors and graduate students.

MGT 481—MANAGEMENT PHILOSOPHY AND PRACTICE. 4 credits
Prerequisite: Management major or consent of instructor. Contrasting philosophies of management. Leading management theories. Current issues in management practices.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

MGT 570—PRODUCTION MANAGEMENT PROBLEMS. 5 credits*

Problems in the management of industrial enterprise. Management principles and mathematical analysis applied to manufacturing; product development and production; materials and production control; employee relations.

MGT 571—MANAGERIAL OPERATIONS ANALYSIS 2. 4 credits*

Prerequisite: MGT 470 or MGT 570 or consent of instructor. Case studies of managerial applications of modern techniques of mathematical programming, statistical analysis, and economic analysis.

MGT 572—MANAGERIAL OPERATIONS ANALYSIS 3. 4 credits*

Prerequisites: MGT 571. Concepts and technique of the simulation approach applied to complex managerial problems.

* Available for graduate major credit.

GRADUATE COURSES

MGT 601—LEGAL PROBLEMS OF MANAGEMENT. 4 credits
MGT 610—MANAGERIAL PLANNING. 4 credits
MGT 611—THEORY OF MANAGERIAL ORGANIZATION AND CONTROL. 4 credits
MGT 612—ORGANIZATIONAL BEHAVIOR. 4 credits
MGT 614—SEMINAR IN MANAGEMENT. 4 credits
MGT 630—INDIVIDUAL WORK IN MANAGEMENT. 1 to 5 credits
Maximum of 10 credits
MGT 650—PERSONNEL TECHNIQUES AND ADMINISTRATION. 4 credits
MGT 660—PROBLEMS IN COLLECTIVE BARGAINING. 4 credits
MGT 690—SPECIAL TOPICS IN MANAGEMENT. 4 credits
MGT 699—MASTER'S RESEARCH. 1 to 15 credits

Marketing

INSTRUCTIONAL STAFF 1969-70

Butterworth, J. D., *Chairman;* Anderson, A. A.; Dimsdale, P. B.; Faricy, J. H.; Gates, R. H.; Grossbart, S. L.; Hess, N. R.; Hovde, H. T.; Sims, G. R.; Thompson, R. B.

Courses numbered 300 or higher are open only to students with junior standing. Note, however, the specific prerequisites for certain courses.

MKG 331—PRINCIPLES OF MARKETING. 4 credits

Functions, institutions, and methods of marketing goods and services. Relates Marketing to the total economic structure and emphasizes the importance of the consumer.

MKG 352—MARKETING COMMUNICATIONS. 4 credits

Prerequisite: MKG 331. The role of personal and non-personal communications in the marketing process and the planning and integration of promotional programs.

MKG 362—MARKETING CHANNELS. 4 credits

Prerequisite: MKG 331. Types, functions, and operating problems of wholesale and retail middlemen.

MKG 421—INTERNATIONAL MARKETING. 3 credits

Prerequisite: 8 credits in Marketing. The Marketing aspects of successful foreign market penetration.

MKG 431—MARKETING MANAGEMENT. 3 credits
Prerequisites: Senior standing, and twelve hours of Marketing. Marketing policies and methods, including product and brand development, channels of distribution, promotion, and pricing.

MKG 441—SALES MANAGEMENT. 3 credits
Prerequisite: MKG 352. Principles, methods, and problems relating to the management of a sales force. Selection and training, organization, compensation and stimulation, and control.

MKG 451—ADVERTISING MANAGEMENT. 3 credits
Prerequisite: MKG 352. A case course dealing with advertising problems, policies, and procedures; coordination of advertising and other marketing functions.

MKG 461—RETAIL MANAGEMENT. 3 credits
Prerequisite: MKG 362. A case course designed to train students in the analysis and solution of retail merchandising and operating problems.

MKG 471—MARKETING RESEARCH. 4 credits
Prerequisites: MKG 331, ES 361. Research methods applied to marketing, introduction to sampling; collection, analysis, and reporting of data; survey of sales forecasting, market analysis, distribution cost analysis.

MKG 481—CREDIT AND COLLECTIONS. 3 credits
Principles and practices in the administration of consumer and mercantile credit.

MKG 491—PHYSICAL DISTRIBUTION MANAGEMENT. 3 credits
Prerequisite: MKG 362. Nature, organization and administration of physical distribution systems.

MKG 493—FIELD WORK IN MARKETING. 1 to 5 credits
Designed for those who wish to combine work experience with academic credit. Open only to Marketing majors. Prior approval of Department required.

MKG 531—MARKETING PRINCIPLES AND INSTITUTIONS. 4 credits
A descriptive and analytical approach to the study of marketing institutions and functions. Required of, but not limited to, all candidates for the Master of Business Administration degree who have not had a basic marketing course.

GRADUATE COURSES

MKG 621—INTERNATIONAL MARKETING 1. 5 credits
MKG 622—INTERNATIONAL MARKETING 2. 5 credits
MKG 630—INDIVIDUAL WORK. 1 to 5 credits. Maximum 15 credits
MKG 631—SEMINAR IN MARKETING THEORY. 5 credits
MKG 639—SEMINAR IN MARKETING MANAGEMENT. 5 credits
MKG 652—CONSUMER BEHAVIOR. 5 credits
MKG 671—SEMINAR IN MARKETING RESEARCH. 5 credits
MKG 690—SPECIAL TOPICS IN MARKETING. 5 credits
MKG 699—MASTER'S RESEARCH. 1 to 15 credits

Real Estate and Urban Land Studies

INSTRUCTIONAL STAFF 1969-70

Ring, A. A., *Chairman;* Beaton, W. R.; Boatright, R. O.; Curtis, C. C.; Gaitanis, L. A.

Courses numbered 300 or higher are open only to students with junior standing or above. Note, however, the specific prerequisites for certain courses.

RE 340—HOUSING AND HOME OWNERSHIP. 3 credits

Concerned with the consumption of real estate and the principles and practices of home ownership, home construction and design. When, where, and how to buy a home.

RE 350—REAL ESTATE FUNDAMENTALS. 4 credits

Principles of real estate and urban land economics concerned with the legal, economic, and governmental aspects of real property ownership and control.

RE 360—REAL ESTATE BROKERAGE AND MANAGEMENT POLICIES AND PRACTICES. 3 credits

Prerequisite: RE 350. Organization and conduct of real estate brokerage and managerial business and professional activities. Social, economic, legal, and ethical responsibilities of the real estate broker and real property manager.

RE 370—URBAN LAND UTILIZATION. 3 credits

Prerequisite: RE 350. Land and population, economics of land utilization; urbanization and urban lands, manufacturing as an urbanizing factor, labor as a factor, transportation and commerce in city location and urbanization.

RE 390—PROPERTY VALUATION. 4 credits

Prerequisite: RE 350. A study of social, economic, and governmental forces influencing property value. Analysis of principles and practices essential to measurement of value.

RE 450—REAL ESTATE LAW. 4 credits

Prerequisite: RE 350 or consent of instructor. Legal aspects of real property ownership, development, transfer and brokerage.

RE 460—REAL ESTATE INVESTMENT PRINCIPLES AND PRACTICES. 3 credits

Prerequisite: RE 350 or permission of instructor. A study of the influence of Federal and State laws and income taxes on real estate investments. Emphasis is placed on tax consequences on property ownership as they affect the individual investors' spendable income.

RE 470—URBAN GROWTH AND REGIONAL PLANNING. 3 credits

Prerequisite: RE 350 or permission of instructor. An analysis of the major problems of planning in rapidly growing areas. Emphasis is on economic concepts of planning and the application of economic analysis to the solution of urban planning problems.

RE 480—REAL ESTATE FINANCE. 3 credits

Prerequisite: RE 350. Functions of real estate finances; the loan contract, the mortgage market; elements of mortgage risk; loan policy and administration of loans; analysis of current mortgage market conditions.

RE 490—REAL ESTATE APPRAISING. 4 credits

Prerequisite: RE 390. Designed to train students in the technique and art of real estate appraising. Studies of valuation procedures via the cost, market, and income approach to real estate value.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

RE 595—INDUSTRIAL AND COMMERCIAL REAL ESTATE PRINCIPLES AND PROBLEMS. 3 credits*

A principle and case study course concerned with economic, financial, managerial and marketing aspects of industrial and commercial planning and land utilization.

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*Available for graduate major credit.

GRADUATE COURSES

RE 630—INDIVIDUAL WORK. 4 credits. Maximum 12 credits
RE 650—REAL ESTATE INVESTMENTS, PRINCIPLES AND PRACTICES. 4 credits
RE 660—RESEARCH IN REAL ESTATE BROKERAGE, MANAGEMENT AND LAW. 4 credits
RE 670—PROBLEMS OF URBAN GROWTH AND REGIONAL PLANNING. 4 credits
RE 680—PROBLEMS IN REAL ESTATE FINANCE. 4 credits
RE 690—PROBLEMS IN PROPERTY VALUATION. 4 credits
RE 699—MASTER'S RESEARCH. 1 to 15 credits

College of Education

ADMINISTRATION AND SUPERVISION

COUNSELOR EDUCATION

ELEMENTARY

FOUNDATIONS

GENERAL—CROSS DEPARTMENTAL

SPECIAL EDUCATION

SCHOOL ART

SECONDARY

VOCATIONAL, TECHNICAL AND ADULT
Agricultural and Extension
Business Education
Technical and Adult

Education

Administration and Supervision

INSTRUCTIONAL STAFF 1969-70

Kimbrough, R. B., *Chairman;* Ahrens, M. R.; Alexander, S. K.; Alexander, W. M.; Andes, J. O.; Arney, L. H.; Boardman, G. R.; Eggert, C. L.; Frossard, R. T.; Hass, C. G.; Johns, R. L.; Kurth, E. L.; LaVire, W. A.; Nunnery, M. Y.; Roberts, D. Y.; Salmon, R. G.; Schafer, M. I.; Stollar, D. H.; Todd, E. A.; Wattenbarger, J. L.; White, J. B.

GRADUATE COURSES

EDA 600—EDUCATIONAL ORGANIZATION AND ADMINISTRATION. 4 credits

EDA 601—ORGANIZATION AND ADMINISTRATION OF ELEMENTARY SCHOOLS. 4 credits

EDA 602—ORGANIZATION AND ADMINISTRATION OF SECONDARY SCHOOLS. 4 credits

EDA 603—PUBLIC SCHOOL FINANCE. 4 credits

EDA 604—LEGAL PHASES OF PUBLIC SCHOOL ADMINISTRATION. 4 credits

EDA 605—PUBLIC SCHOOL BUSINESS ADMINISTRATION. 4 credits

EDA 606—SUPERVISED PRACTICE IN SCHOOL ADMINISTRATION. 4 credits
Maximum 8 credits

EDA 607—ADMINISTRATION OF SCHOOL PERSONNEL. 4 credits

EDA 609—PROBLEMS IN SCHOOL ADMINISTRATION AND SUPERVISION. 4 credits
Maximum 8 credits

EDA 610—ORGANIZATION AND ADMINISTRATION OF ADULT EDUCATION. 4 credits

EDA 630—INDIVIDUAL WORK. 2 to 5 credits
Maximum 15 credits

EDA 631—EDUCATIONAL LEADERSHIP 1. 4 credits

EDA 632—EDUCATIONAL LEADERSHIP 2. 2 to 5 credits

EDA 690—SPECIAL TOPICS. 4 credits
Maximum 15 credits

EDA 697—SUPERVISED RESEARCH. 1 to 5 credits

EDA 698—SUPERVISED TEACHING. 1 to 5 credits

EDA 700—SCHOOL SURVEY. 4 credits

EDA 702—THE SCHOOL PLANT. 4 credits

EDA 703—THE FINANCING OF HIGHER EDUCATION. 4 credits

EDA 704—COLLEGE ADMINISTRATION. 4 credits

EDA 705—THE LAW AND HIGHER EDUCATION. 4 credits

EDA 706—SEMINAR: THEORIES OF EDUCATIONAL ADMINISTRATION. 4 credits

EDA 707—RESEARCH DESIGN IN EDUCATIONAL ADMINISTRATION. 4 credits

EDA 710—SEMINAR: STATE AND REGIONAL COORDINATION AND CONTROL OF HIGHER EDUCATION. 4 credits

EDA 730—PRACTICUM IN SUPERVISION AND ADMINISTRATION. 3 to 15 credits
Maximum 15 credits

Education—Counselor Education

INSTRUCTIONAL STAFF 1969-70

Lister, J. L., *Chairman;* Carter, T. A.; Clark, E. B.; Cosby, B. W.; Cranney, A. G.; Duncan, C. W.; Kline, W. E.; Landsman, T. L.; Lane, D.; Lynch, A. Q.; McMillan, M. R.; Muthard, J. E.; Myrick, R. D.; Riker, H. C.; Schmidt, M. R.; Sharp, B. L.; Stripling, R. O. Tolbert, E. L.; Webster, G. B.; Wittmer, P. J.

EDC 301—STUDENT DEVELOPMENT IN A UNIVERSITY SETTING. 3 credits

Examines factors affecting student growth and development in the university setting, current problems facing students, and the use of group processes and leadership training in solving problems and facilitating growth.

EDC 450—GUIDANCE ROLE OF THE TEACHER. 4 credits

The teacher's role in personal guidance of the student in the classroom. Use of the professional counselor as a consultant. Basic principles of the helping relationship as applied to the teacher-counselor.

GRADUATE COURSES

EDC 610—PRINCIPLES OF GUIDANCE: THE HELPING RELATIONSHIP. 4 credits
EDC 611—VOCATIONAL DEVELOPMENT. 4 credits
EDC 612—TECHNIQUES OF GUIDANCE AND PERSONNEL WORK. 5 credits
EDC 613—PERSONNEL TESTING. 4 credits
EDC 614—COUNSELING THEORY. 5 credits
EDC 615—SUPERVISED PRACTICE IN COUNSELING 1. 5 credits
EDC 618—ORGANIZATION AND ADMINISTRATION OF GUIDANCE AND PERSONNEL PROGRAMS. 4 credits
EDC 619—SUPERVISED PRACTICE IN COUNSELING 2. 5 credits
EDC 620—LABORATORY IN COUNSELING. 1 credit
EDC 621—SENSITIVITY EXPLORATORY LABORATORY. 1 credit
EDC 622—COUNSELING WITH CHILDREN. 4 credits
EDC 623—GROUP PROCEDURES IN GUIDANCE AND PERSONNEL WORK. 4 credits
EDC 624—GROUP COUNSELING. 4 credits
EDC 630—INDIVIDUAL WORK. 2 to 5 credits. Maximum 15 credits
EDC 640—STUDENT PERSONNEL SERVICES IN HIGHER EDUCATION. 4 credits
EDC 641—THE COLLEGE COMMUNITY AND THE STUDENT. 4 credits
EDC 659—SEMINAR FOR COUNSELING IN SPECIALIZED SETTINGS. 4 credits
EDC 660—PROBLEMS IN PERSONNEL WORK. 3 to 10 credits
EDC 690—SPECIAL TOPICS. 2 to 5 credits. Maximum 15 credits
EDC 697—SUPERVISED RESEARCH. 1 to 5 credits
EDC 698—SUPERVISED TEACHING. 1 to 5 credits
EDC 710—PRACTICUM IN COUNSELING. 4 credits
Maximum 12 credits
EDC 711—PRACTICUM IN GROUP COUNSELING. 4 credits
EDC 715—SEMINAR IN PERSONNEL WORK. 5 credits
EDC 716—INTERNSHIP IN PERSONNEL WORK 1. 5 credits
EDC 717—INTERNSHIP IN PERSONNEL WORK 2. 5 credits
EDC 718—INTERNSHIP IN PERSONNEL WORK 3. 5 credits
EDC 721—CONSULTATION PROCEDURES. 4 credits
EDC 722—EVALUATIVE RESEARCH IN COUNSELING, GUIDANCE, AND PERSONNEL WORK. 5 credits

Education—Elementary

INSTRUCTIONAL STAFF 1969-70

Olson, W., *Acting Chairman;* Ambrose, E. V.; Bane, R. K.; Bernard, D. H.; Block, A. C.; Blume, R.; Cooper, A. J.; Crews, R.; Ferguson, R. C.; Fillmer, H. T.; Flannery, M. E.; Giblin, M.; Henriksen, E.; Hilliard, F. P.; Kaplan, L.; Knight, C.; Lawrence, J.; Michalak, D.; Newcomb, A. P., Jr.; Packer, A. B.; Parramore, H.; Peeler, T.; Purser, M. M.; Rowe, B.; Shea, J. J.; Sheckles, M. E.; Strickland, J. H.; Tison, J. P.; Wenzel, E. L.; Young, G. M.

EDE 300—CHILDREN AND LEARNING—ELEMENTARY 1. 4 credits

Prerequisite: EDF 345, and admission to the Advanced Professional Sequence in Elementary Education. Study of the total elementary school program with emphasis on basic curriculum principles and the role of the teacher. Includes observation and participation; must be scheduled concurrently with EDE 331, EDE 370, and EDE 375.

EDE 301—CHILDREN AND LEARNING—ELEMENTARY 2. 4 credits

Prerequisite: EDF 345, and admission to the Advanced Professional Sequence in Elementary Education. Study of the curriculum of the elementary school with emphasis on the methods and instructional materials used in creating a desirable learning environment. Includes observation and participation; must be scheduled concurrently with EDE 320, EDE 350, and EDE 360.

EDE 302—CHILDREN AND LEARNING—ELEMENTARY 3. 4 credits

Planning and evaluating the curriculum and teaching in the elementary school. Includes observation and participation; must be scheduled concurrently with EDE 500.

EDE 303—CHILDREN AND LEARNING—NURSERY-KINDERGARTEN-PRIMARY 1. 4 credits

Study of basic curriculum principles for children from 3 to 8 years. Includes observation and participation; must be scheduled concurrently with EDE 331, EDE 370, and EDE 375.

EDE 304—CHILDREN AND LEARNING—NURSERY-KINDERGARTEN-PRIMARY 2. 4 credits

Study of nursery school, kindergarten, primary curriculum with particular emphasis on methods and materials. Includes observation and participation; must be scheduled concurrently with EDE 320, EDE 350, and EDE 360.

EDE 305—CHILDREN AND LEARNING—NURSERY-KINDERGARTEN-PRIMARY 3. 4 credits

Planning and evaluating the curriculum in nursery school, kindergarten, and primary years. Includes observation and participation; must be scheduled concurrently with EDE 500.

EDE 320—SOCIAL STUDIES IN ELEMENTARY SCHOOL 1. 4 credits

Satisfies the certification requirement in the Elementary School Course, Area III. Overview of the social studies program for children. Exploration of the role of social studies and other opportunities in the school curriculum for developing needed social learnings. Study of methods and materials; must be scheduled concurrently with EDE 301, EDE 350, and EDE 360.

EDE 321—SOCIAL STUDIES IN ELEMENTARY SCHOOL 2. 4 credits

Satisfies the certification requirement in the Elementary School Course, Area III. Examination of content in the social studies field needed for the instruction of elementary children. Relationship of content in the social studies and the objectives of the elementary school. Recommended for undergraduate students only.

EDE 331—ART IN ELEMENTARY SCHOOL. 4 credits
Satisfies the certification requirement in the Elementary School Course, Area V. Exploration of art materials. Emphasis upon the role of art in developing creative expression. Study of children's art. Laboratory, lecture, visual aids, and class discussion; must be scheduled concurrently with EDE 300, EDE 370, and EDE 375.

EDE 332—ART EXPERIENCES WITH CHILDREN. 4 credits
Prerequisite: EDE 331 or SCA 353. Directed experiences with children. Planning, teaching, and evaluating art experiences.

EDE 350—MATHEMATICS IN ELEMENTARY SCHOOL. 4 credits
Study of modern mathematics in the education of children. This course must be scheduled concurrently with EDE 301, EDE 320, and EDE 360.

EDE 360—SCIENCE IN ELEMENTARY SCHOOL 1. 4 credits
Satisfies certification requirement in the Elementary Course, Area II. The role of science in the education of children, including experiences with content and materials, and a variety of approaches in teaching; must be scheduled concurrently with EDE 301, EDE 320, and EDE 350.

EDE 361—SCIENCE IN ELEMENTARY SCHOOL 2. 4 credits
A continuation of EDE 360.

EDE 370—LANGUAGE ARTS IN ELEMENTARY SCHOOL 1. 4 credits
Study of the language arts in the education of children: listening, oral and written expression. Must be scheduled concurrently with EDE 300, EDE 331, EDE 375.

EDE 375—READING IN ELEMENTARY SCHOOL. 4 credits
Study of reading in the education of children. Must be scheduled concurrently with EDE 300, EDE 331, and EDE 370.

EDE 400—ELEMENTARY SCHOOL TODAY. 5 credits
Prerequisite: Admission to Advanced Professional Sequence in Education. Purposes, organization, and curriculum of the elementary school. Concurrent with EDS 400, for students in special fields desiring certification K-12.

EDE 405—STUDENT TEACHING IN ELEMENTARY SCHOOL. 4 to 16 credits
Prerequisite: See "Admission to Student Teaching in Any Teacher Education Program" and approval of the Elementary staff. Student Teaching in selected classrooms of public schools; special seminars and continuous evaluation of teaching experiences. No other course may be taken during the student teaching quarter, except in the Experimental Program in Elmentary Education.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

EDE 500—SEMINAR IN ELEMENTARY EDUCATION 1. 4 credits*
Prerequisite: EDE 405 or teaching experience. Under staff guidance students will review the role of the elementary, kindergarten, and nursery schools in society and the teacher's role, and study intensively individual problems encountered during student teaching or teaching. Must be scheduled concurrently with EDE 302 or EDE 305.

EDE 503—LABORATORY IN NURSERY SCHOOL-KINDERGARTEN TEACHING. 4 to 8 credits
Prerequisite: Consent of instructor. Practical experience under guidance of selected teachers in schools and centers for 3 to 6 year old children. Application must be made by first day of quarter preceding enrollment.

EDE 531—TEACHING ART IN ELEMENTARY SCHOOI 1. 4 credits
Not open to students who have taken EDE 331. For in-service teachers. A study of art expression based on an understanding of child development. Laboratory, lecture, visual aids, class discussion, and individual projects.

EDE 532—TEACHING ART IN ELEMENTARY SCHOOL 2. 4 credits
Prerequisite: EDE 531 or EDE 331 or equivalent. For in-service teachers. Laboratory experiences with materials. Emphasis upon ways of developing art experiences with children. Individual and group projects.

EDE 550—TEACHING MODERN MATH IN ELEMENTARY SCHOOL. 4 credits*
An analysis of content, methodology, and materials for teaching modern mathematics in the elementary school.

EDE 560—TEACHING SCIENCE IN ELEMENTARY SCHOOL. 4 credits*
Emphasis is placed upon science content, methods and materials for elementary school children. A basic course for in-service teachers.

EDE 575—TEACHING READING IN THE ELEMENTARY SCHOOL 1. 4 credits*
A basic course for teaching reading in the elementary school with emphasis on materials and methods for use with young children at pre-reading and beginning reading levels.

EDE 576—TEACHING READING IN THE ELEMENTARY SCHOOL 2. 4 credits*
A basic course for teaching reading in the elementary school with emphasis on materials and methods for teaching reading to students in upper elementary and junior high school grades.

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*Available for graduate major credit.

GRADUATE COURSES

EDE 600—ELEMENTARY SCHOOL CURRICULUM. 4 credits
EDE 601—PRACTICES IN ELEMENTARY EDUCATION. 4 credits
EDE 603—EARLY CHILDHOOD EDUCATION, 1. 4 credits
EDE 604—EARLY CHILDHOOD EDUCATION, 2. 4 credits
EDE 608—MODELS FOR CURRICULUM ORGANIZATION AND INSTRUCTION. 4 credits
EDE 620—SOCIAL STUDIES EDUCATION—ELEMENTARY SCHOOL. 4 credits
EDE 630—INDIVIDUAL WORK. 2 to 5 credits
Maximum 15 credits
EDE 635—SUPERVISION OF PRE-SERVICE TEACHERS. 4 credits
EDE 650—MATHEMATICS IN THE ELEMENTARY SCHOOL. 4 credits
EDE 660—SCIENCE EDUCATION IN THE ELEMENTARY SCHOOL. 4 credits
EDE 670—LANGUAGE ARTS IN THE ELEMENTARY SCHOOL 2. 4 credits
EDE 672—CHILDREN'S LITERATURE IN THE ELEMENTARY CURRICULUM. 4 credits
EDE 675—TRENDS IN THE TEACHING OF READING. 4 credits
EDE 690—SPECIAL TOPICS. 2 to 5 credits
EDE 697—SUPERVISED RESEARCH. 1 to 5 credits
EDE 698—SUPERVISED TEACHING. 1 to 5 credits
EDE 700—PROBLEMS IN ELEMENTARY EDUCATION 1. 4 credits
EDE 701—PROBLEMS IN ELEMENTARY EDUCATION 2. 4 credits
EDE 702—EVALUATION IN ELEMENTARY SCHOOL. 4 credits
EDE 703—SEMINAR IN ELEMENTARY EDUCATION 2. 4 to 8 credits
Maximum 8 credits

EDE 704—SEMINAR IN EARLY CHILDHOOD EDUCATION. 2 to 8 credits
Maximum 8 credits

Education—Foundations

INSTRUCTIONAL STAFF 1969-70

Lewis, H. G., *Chairman;* Andrews, S. D.; Aspy, D. N.; Avila, D. L.; Best, J. H.; Bridges, C. M., Jr.; Brown, B. B.; Busby, W. A.; Cage, B. N.; Combs, A. W.; Curran, R. L.; Dedrick, C. V. L.; Garber, Malcom; Gordon, I. J.; Greenwood, G. E.; Guertin, W.; Hines, V. A.; Jester, R. E.; Neel, J. H.; Newell, J. M.; Newman, A. J.; Primack, R.; Purkey, W. W.; Renner, R. R.; Sherman, R.; Siegel, B.; Soar, R. S.; Ware, W. E.; Wass, H. L.

EDF 300—HISTORY OF EDUCATION IN THE UNITED STATES. 5 credits
Prerequisite: Permission of departmental representative. Permission is not required for upper division students. The development of American schools and major problems in American education, with emphasis upon the relationships among the schools, intellectual movements, and social institutions.

EDF 320—SOCIAL FOUNDATIONS OF EDUCATION. 5 credits
Prerequisite: Permission of departmental representative. Permission is not required for upper division students. A study of the educative effects of our social structures, the social values and issues involved in appraising these effects, and the resulting social demands upon the schools.

EDF 341—THE YOUNG CHILD. 5 credits
Prerequisite: EDF 345. Study of growth and development during infancy and early childhood. Laboratory includes observation and participation in nursery school and kindergarten.

EDF 345—HUMAN GROWTH AND DEVELOPMENT. 5 credits
Prerequisite: Permission of departmental representative. Permission is not required for upper division students. An analysis of the principles of human development as they apply to understanding pupil behavior in the classroom. Observation in the P. K. Yonge Laboratory School is required.

EDF 360—ELEMENTARY STATISTICAL METHODS IN EDUCATION. 5 credits
Application of selected techniques of organization and interpretation of educational data.

EDF 410—PHILOSOPHY OF EDUCATION. 5 credits
A critical examination is made of various theories and philosophies of education, their relationships to the democratic principle, and their significance to the evolving system of education in the United States.

EDF 431—COMPARATIVE EDUCATION. 5 credits
Prerequisite: Permission of departmental representative. Permission is not required for upper division students. A survey of educational problems in contemporary foreign countries with emphasis upon their implications for the United States.

EDF 440—DYNAMICS OF HUMAN DEVELOPMENT. 5 credits
Prerequisite: EDF 345. The dynamics of personality development with implications for classroom practice. Particular attention will be given to the development of self in childhood and adolescence.

EDF 442—EDUCATIONAL PSYCHOLOGY. 5 credits
An understanding of the applications of psychological principles to the educational process. It treats such topics as individual differences, principles of learning, transfer of training, and the nature of reasoning.

EDF 450—MEASUREMENT AND EVALUATION IN EDUCATION. 5 credits
Study is made of the basic principles and methods of measurement and evaluation of pupil learning in schools.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

EDF 540—SEMINAR IN MEASUREMENT OF CLASSROOM BEHAVIOR. 5 credits*
Methods of recording classroom interaction; research results; implications for teaching and learning.

*Available for graduate major credit.

GRADUATE COURSES

EDF 600—HISTORY OF EDUCATION. 5 credits
EDF 601—ANCIENT AND MEDIEVAL EDUCATION. 5 credits
EDF 610—PHILOSOPHICAL FOUNDATIONS OF EDUCATION. 5 credits
EDF 620—SOCIO-ECONOMIC FOUNDATIONS OF EDUCATION. 5 credits
EDF 625—EDUCATIONAL SOCIOLOGY. 5 credits
EDF 630—INDIVIDUAL WORK. 2 to 5 credits
Maximum 15 credits
EDF 631—COMPARATIVE EDUCATION. 5 credits
EDF 632—EDUCATION IN LATIN AMERICA. 5 credits
EDF 640—EDUCATIONAL PSYCHOLOGY: HUMAN DEVELOPMENT. 5 credits
EDF 641—EDUCATIONAL PSYCHOLOGY: PERSONALITY DYNAMICS. 5 credits
EDF 642—EDUCATIONAL PSYCHOLOGY: PROBLEMS. 5 credits
EDF 643—EDUCATIONAL PSYCHOLOGY: LEARNING THEORY. 5 credits
EDF 644—LABORATORY IN HUMAN DEVELOPMENT 1. 5 credits
EDF 645—LABORATORY IN HUMAN DEVELOPMENT 2. 5 credits
EDF 646—EDUCATIONAL PSYCHOLOGY: GENERAL. 5 credits
EDF 650—MEASUREMENT AND EVALUATION. 5 credits
EDF 660—EDUCATIONAL STATISTICS. 5 credits
EDF 661—COMPUTERS IN EDUCATIONAL RESEARCH. 5 credits
EDF 662—PRACTICUM IN EDUCATIONAL RESEARCH. 3 to 12 credits
EDF 663—RESEARCH METHODS IN EDUCATION. 5 credits
EDF 664—QUANTITATIVE FOUNDATIONS OF EDUCATIONAL RESEARCH. 10 credits
EDF 690—SPECIAL TOPICS. 2 to 5 credits
EDF 697—SUPERVISED RESEARCH. 1 to 5 credits
EDF 698—SUPERVISED TEACHING. 1 to 5 credits
EDF 701—EDUCATIONAL CLASSICS. 5 credits
EDF 710—EDUCATION AND MORAL AND SPIRITUAL IDEAS. 5 credits
EDF 711—THEORIES OF MIND. 5 credits
EDF 712—CONTEMPORARY EDUCATIONAL THEORIES. 5 credits
EDF 720—SCHOOL AND SOCIETY. 5 credits
EDF 740—EDUCATIONAL PSYCHOLOGY: COGNITION IN THE EDUCATIVE PROCESS. 5 credits
EDF 741—EDUCATIONAL IMPLICATIONS OF PERCEPTUAL PSYCHOLOGY. 5 credits
EDF 743—ADVANCED EDUCATIONAL PSYCHOLOGY: LEARNING. 5 credits
EDF 760—METHODS OF EDUCATIONAL RESEARCH. 5 credits
EDF 764—ADVANCED QUANTITATIVE FOUNDATIONS OF EDUCATIONAL RESEARCH. 10 credits
EDF 765—SEMINAR IN EDUCATIONAL RESEARCH. 4 credits
EDF 766—ANALYSIS OF EDUCATIONAL RESEARCH. 4 credits
EDF 768—EVALUATION OF EDUCATIONAL PROJECTS AND SYSTEMS. 5 credits
EDF 780—SEMINAR IN EDUCATIONAL FOUNDATIONS. 5 credits

Education
General and Cross-Departmental Courses

INSTRUCTIONAL STAFF 1969-70

Lewis, A. J., *Chairman;* Ahrens, M. R.; Alexander, W. M.; Ambrose, E. V.; Bingham, N. E.; Cate, C. A.; Cooper, J.; Durrance, C. L.; Eggert, C. L.; Gardner, C. H.; Hass C. G.; Hilliard, F. P.; Kidd, K. P.; LaVire, W. A.; Lawrence, G. D.; Myers, R. B.; Olson, W.; Steele, K. L.; Todd, E. A.; White, J. B.; Williams, E. L.

ED 400—SEMINAR IN PROBLEMS AND ISSUES IN EDUCATION. 4 credits

Prerequisites: EDF 345, EDF 300 or EDF 320 or EDF 410. Open only to selected upper division undergraduate students. A group approach to dealing with problems and issues in education including a critical examination of current research and involving, where pertinent, simple research procedures.

ED 404—STUDY OF SELECTED TEACHING PROCEDURES. 4 credits

Prerequisite: EDF 345 or equivalent. A study of the guidance function of teaching, of the use of audio-visual instructional aids, and measurement and evaluation. For undergraduates only.

ED 418—AUDIO-VISUAL MATERIALS OF INSTRUCTION. 4 credits

A general course for teachers at all grade levels. Presents sources and methods of using audio-visual materials of instruction.

ED 419—PRODUCTION OF AUDIO-VISUAL MATERIALS. 4 credits

Prerequisite: ED 418 or consent of instructor. The selection, production and evaluation of instructional materials with emphasis upon the production of materials by photographic processes.

ED 430—INDIVIDUAL STUDY. 2 to 9 credits

Open only to selected undergraduate students who wish to study an individual problem in depth which relates to their preparation as teachers. The project must be approved by and carried on under the guidance of a faculty member.

ED 459—SUBJECT-AREA PLANNING FOR ELEMENTARY TEACHERS. 4 credits

Offered only by extension. A workshop for the development of individual, city-wide, or county-wide plans for improving programs in language arts, social studies, mathematics, health, art, music, science, etc.

ED 460—SUBJECT-AREA PLANNING FOR SECONDARY TEACHERS. 4 credits

Offered only by extension. A workshop for the development of individual, city-wide, or county-wide plans for improving instruction in secondary school subjects.

ED 500—SUPERVISED STUDENT TEACHING 1. 4 credits

Prerequisite: Credit for one quarter of work at the University of Florida and approval of the department chairman. Supervised observation, participation, and teaching under guidance of a selected classroom teacher. Application for student teaching in Summer Quarter must be submitted by March 1.

ED 501—SUPERVISED STUDENT TEACHING 2. 4 credits

The second half of the course ED 500.
Prerequisite: Credit for one quarter of work at the University of Florida and approval of department chairman. Application for student teaching in summer session must be made by March 1.

GRADUATE COURSES

ED 600—THE SCHOOL CURRICULUM. 4 credits
ED 601—THE EMERGENT MIDDLE SCHOOL 4 credits
ED 603—THE COMMUNITY JUNIOR COLLEGE IN AMERICA. 4 credits
ED 620—THE EDUCATION OF CULTURALLY DISADVANTAGED CHILDREN AND YOUTH 4 credits
ED 630—INDIVIDUAL WORK. 2 to 5 credits. Maximum 15 credits
ED 633—METHODS AND PROBLEMS OF SUPERVISION. 4 credits
ED 634—GROUP PROCESS IN EDUCATION. 4 credits
ED 640—AMERICAN HIGHER EDUCATION. 4 credits
ED 641—PRACTICUM IN COLLEGE TEACHING, 1. 4 credits
ED 642—PRACTICUM IN COLLEGE TEACHING, 2. 4 credits
ED 646—THE TEACHING OF SPECIAL SCIENCE PROGRAMS. 3 to 6 credits. Maximum 6 credits
ED 648—PROBLEMS IN CURRICULUM AND INSTRUCTION. 3 to 15 credits Maximum 15 credits
ED 649—SUBJECT-AREA PLANNING FOR ELEMENTARY TEACHERS. (Formerly ED 559.) 3 to 6 credits. Maximum 6 credits
ED 651—AUDIO-VISUAL EDUCATION. 4 credits
ED 652—PRODUCTION AND UTILIZATION OF AUDIO-VISUAL MATERIALS. 4 credits
ED 653—ORGANIZATION AND OPERATION OF A MATERIALS-OF-INSTRUCTION PROGRAM. 4 credits
ED 654—PROGRAMMED INSTRUCTIONAL MATERIAL. 4 credits
ED 657—FLORIDA WORKSHOP: BULLETIN SERIES DIVISION 3 to 6 credits Maximum 6 credits
ED 659—LABORATORY IN CORRECTIVE READING. 4 to 8 credits Maximum 8 credits
ED 660—SUBJECT-AREA PLANNING FOR SECONDARY TEACHERS. (Formerly ED 560.) 4 credits
ED 661—PROBLEMS IN READING. 4 credits
ED 663—MUSIC IN THE ELEMENTARY SCHOOL. 4 credits
ED 664—VOCAL MUSIC IN THE SECONDARY SCHOOL. 4 credits
ED 665—ORCHESTRA MUSIC IN THE PUBLIC SCHOOLS. 4 credits
ED 666—BAND MUSIC IN THE PUBLIC SCHOOLS. 4 credits
ED 667—FOUNDATIONS OF MUSIC EDUCATION 4 credits
ED 670—WORKSHOP IN HUMAN RELATIONS IN EDUCATION. 3 to 9 credits Maximum 9 credits
ED 671—FOUNDATIONS OF ART EDUCATION. 4 credits
ED 673—THE AESTHETIC EXPERIENCE. 4 credits
ED 675—CURRICULUM IN ART EDUCATION. 4 credits
ED 676—THE TEACHING OF ART IN HIGHER EDUCATION. 4 credits
ED 678—ART EDUCATION AND RELATED DISCIPLINES. 4 credits
ED 682—FIELD LABORATORY FOR FACULTY STUDY OF SPECIAL PROBLEMS. 3 to 9 credits. Maximum 9 credits
ED 690—SPECIAL TOPICS. 2 to 5 credits
ED 697—SUPERVISED RESEARCH. 1 to 5 credits
ED 698—SUPERVISED TEACHING. 1 to 5 credits
ED 699—MASTER'S RESEARCH. 1 to 15 credits
ED 700—INSTRUCTION: THEORY AND RESEARCH. 4 credits
ED 701—CURRICULUM: THEORY AND RESEARCH. 4 credits
ED 720—SEMINAR IN THE EDUCATION OF DISADVANTAGED CHILDREN AND YOUTH. 4 credits
ED 731—WORK OF THE DIRECTOR OF CURRICULUM. 4 credits
ED 740—PROGRAMS OF TEACHER EDUCATION. 4 credits
ED 741—INTERNSHIP IN TEACHER EDUCATION, 1. 4 credits
ED 742—INTERNSHIP IN TEACHER EDUCATION, 2. 4 credits
ED 743—SEMINAR: CURRICULUM IN HIGHER EDUCATION. 4 credits
ED 750—SEMINAR: EDUCATION FOR TODAY. 4 credits
ED 751—MATHEMATICS EDUCATION SEMINAR. 4 credits
ED 759—PRACTICUM IN READING. 4 to 8 credits

ED 760—SCIENCE EDUCATION SEMINAR. 4 credits
ED 761—SEMINAR IN READING 4 credits
ED 770—SEMINAR IN ENGLISH LANGUAGE ARTS 4 credits
ED 799—DOCTORAL RESEARCH. 1 to 15 credits

Education—Special Education

INSTRUCTIONAL STAFF 1969-70

Reid, W. R., *Chairman;* Bullock, L. M.; Cunningham, M. A.; Jacobs, J.; Paganini, C.; Reichard, C. L.; Richard, W. C.; Whorton, J. E.; Wolking, W. D.

EDH 300—PRINCIPLES AND PRACTICES FOR TEACHING EXCEPTIONAL CHILDREN. 4 credits

Prerequisite: EDF 345 or equivalent. Incidence, causes, diagnosis, agencies for referral and recommended teaching procedures for the types of exceptional children found in public schools are considered.

EDH 405—STUDENT TEACHING—SPECIAL EDUCATION. 16 credits

Prerequisites: See "Admission to Student Teaching in Any Teacher Education Program," and approval of Special Education Staff.
Student teaching in selected classrooms and other situations for the education of the mentally retarded.
Seminars and continuous evaluation of teaching experiences.
No other courses may be taken during the student teaching quarter.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

EDH 500—PROGRAM DEVELOPMENT FOR THE MENTALLY RETARDED. 4 credits

Prerequisites: EDF 345, EDH 300 or consent of instructor. Educational needs of children and adolescents with varying degrees of retardation. Theoretical bases for program development, and areas in which instruction must be provided for the retarded.

EDH 501—TEACHING THE MENTALLY RETARDED. 4 credits*

Prerequisites: EDH 300 or consent of instructor. Materials and methods for teaching the mentally retarded of various age levels in special classes and in the regular classroom.

EDH 503—TEACHING NEUROLOGICALLY DAMAGED CHILDREN. 4 credits*

Prerequisites: EDH 300, PSY 312, or consent of instructor. A study of children who have learning disabilities due to neurological or unknown causes and the techniques required for their education.

EDH 504—TEACHING EMOTIONALLY DISTURBED AND SOCIALLY MALADJUSTED CHILDREN. 4 credits*

Prerequisites: six credits in psychology or consent of instructor. Behavioral characteristics and causes of emotional or social deviancy in children as they affect education. Types of treatment and educational programs which can be provided within a school setting.

EDH 507—LABORATORY: EVALUATION IN SPECIAL EDUCATION. 3 to 6 credits

Prerequisites: EDF 450 or equivalent. Open only to majors in special education. Study of the measures used in evaluating children referred in special education.

*Available for graduate major credit

GRADUATE COURSES

EDH 600—TEACHING EXCEPTIONAL CHILDREN. 4 credits
EDH 601—EDUCATION OF THE MENTALLY RETARDED. 4 credits
EDH 603—EDUCATION OF THE GIFTED CHILD. 4 credits
EDH 604—LEARNING DISORDERS. 5 credits
EDH 605—DIAGNOSIS AND EDUCATIONAL PRACTICE IN LEARNING DISABILITIES. 3 credits
EDH 607—LABORATORY: EVALUATION IN SPECIAL EDUCATION 3 to 6 credits
EDH 609—SEMINAR IN EDUCATION OF EMOTIONALLY DISTURBED CHILDREN. 4 credits
EDH 630—INDIVIDUAL WORK. 2 to 5 credits
EDH 670—PRACTICUM IN SPECIAL EDUCATION: MENTAL RETARDATION. 4 to 12 credits
EDH 671—PRACTICUM IN SPECIAL EDUCATION: EMOTIONAL DISTURBANCE. 4 to 12 credits
EDH 672—PRACTICUM IN SPECIAL EDUCATION: LEARNING DISABILITIES. 4 to 12 credits
EDH 690—SPECIAL TOPICS 2 to 5 credits
EDH 697—SUPERVISED RESEARCH. 1 to 5 credits
EDH 698—SUPERVISED TEACHING. 1 to 5 credits
EDH 700—SEMINAR IN SPECIAL EDUCATION. 3 credits
EDH 704—INTERNSHIP: SPECIAL EDUCATION 3 to 9 credits

Education—School Art

See also courses in Elementary Education

INSTRUCTIONAL STAFF 1969-70

Olson, W., *Acting Chairman;* Ferguson, R.; Flannery, M.; Newcomb, A.; Purser, M.

SCA 320—METALCRAFT. 4 credits

Creative experiences in metalcraft, tooling, etching, painting, tapping, engraving, enamel and silver jewelry. Emphasis upon techniques suitable for public school and therapy purposes. This course may be repeated once for credit.

SCA 330—CRAFTS. 4 credits

Exploration in craft media such as leather, clay, reed, plastic, wood, and native materials. Attention directed toward creative design and function as well as craftsmanship. This course may be repeated once for credit.

SCA 340—WOODWORKING. 4 credits

Creative design, construction planning and execution, application of common tool techniques, wood finishing and related information. This course may be repeated once for credit.

SCA 353—ARTISTIC DEVELOPMENT OF THE CHILD. 4 credits

The role of the art teacher in elementary and middle school education. Emphasis on developing understanding of child growth and development through artistic and creative expression.

SCA 354—ARTISTIC DEVELOPMENT OF THE ADOLESCENT. 4 credits

The role of the art teacher in secondary education. Study of the creative and artistic expression of the adolescent.

SCA 453—METHODS AND MATERIALS FOR ART EDUCATION. 4 credits

Materials of instruction for art education. Selection, preparation, and use of instructional materials in the art curriculum, K-12.

SCA 454—SEMINAR IN ART EDUCATION. 4 credits

Prerequisite: SCA 405 or teaching experience. The role of the art teacher and the role of art education in society—emphasis on the intensive study of individual problems of teaching encountered during the practicum experience.

Education—Secondary

INSTRUCTIONAL STAFF 1969-70

Todd, E. A., *Chairman;* Ackerman, T. J.; Arnold, L. A.; Bingham, N. E.; Bolduc, E. J.; Campbell, R. F.; Carr, G. D.; Casteel, J. D.; Crews,, J. W.; Crews, R.; Davis, E. A.; Durrance, C. L.; Ellis, B. R.; Hass, C. G.; Henderson, C. A.; Hipple, T. W.; Kidd, K. P.; Marani, J. V.; McGuire, V.; Megenity, J.; Myers, R. B.; Plunkett, B. K.; Scrafford, R. A.; Stevens, B. K.; Timmerman, M. E.; Vogel, P. P.; Williams, E. L.; Zimmerman, L. L.

EDS 301—SELECTED TOPICS IN SECONDARY EDUCATION. 1 to 3 credits

Prerequisite: Junior standing. Introduction to various secondary curricula areas: English, Foreign Language, Mathematics, Science, Social Studies. The student will examine in his subject field current research and will participate in supervised field experiences. May be repeated for a maximum of 5 credits.

EDS 303—THE JUNIOR HIGH SCHOOL. 4 credits

This course deals with the background, organization, content and appropriate techniques of junior high school education.

EDS 306—LABORATORY EXPERIENCE IN SECONDARY SCHOOL INSTRUCTION. 4 credits

Participation in the Laboratory School, with weekly conference or seminar on instructional procedures and curriculum planning to be arranged in lieu of regular class schedule. Student's total program must be approved by the instructor before registration.

EDS 400—THE SECONDARY SCHOOL TODAY. 5 credits

Prerequisite: EDF 345; admission to Advanced Professional Sequence. Purposes and organization of the secondary school curriculum, guidance program, application of learning theory, student activities, evaluating and reporting student progress. Application must be made at least one month in advance of registration at Office of Undergraduate Studies, Room 124 Norman Hall.

EDS 403—SECONDARY SCHOOL CURRICULUM AND ORGANIZATION. 4 credits

Prerequisites: EDF 345, EDS 400; taken concurrently with appropriate methods course. Emphasis on: (1) planning, (2) classroom management, (3) motivation, and (4) evaluation.

EDS 405—STUDENT TEACHING IN THE SECONDARY SCHOOL. 16 credits

Prerequisites: See "Admission to Student Teaching in Any Teacher Education Program," and approval of the Secondary Education staff. Student teaching in selected classrooms, special seminars, and continuous evaluation of teaching experiences. No other courses may be taken during the student teaching quarter.

EDS 414—METHODS AND MATERIALS FOR SPEECH THERAPY. 5 credits

Prerequisites: EDF 345, EDS 400, EDE 400. Presents methods for working as a speech therapist in public schools.

EDS 439—THE TEACHING OF SPEECH IN THE SECONDARY SCHOOLS (Identical with SCH 439). 4 credits

Prerequisite: 8 hours of Speech. A practical philosophy of speech education as it functions at the secondary school level; methods of training in the speech arts.

EDS 444—METHODS AND MATERIALS FOR SOCIAL STUDIES. 5 credits
Prerequisites: EDF 345, EDS 400; taken concurrently with EDS 403. Presents methods of teaching social studies in secondary schools.

EDS 454—METHODS AND MATERIALS FOR MATHEMATICS. 5 credits
Prerequisites: EDF 345, EDS 400; taken concurrently with EDS 403. Presents methods of teaching mathematics in secondary schools.

EDS 464—METHODS AND MATERIALS FOR SCIENCE. 5 credits
Prerequisites: EDF 345, EDS 400; taken concurrently with EDS 403. Presents methods of teaching science in secondary schools.

EDS 474—METHODS AND MATERIALS FOR LANGUAGE ARTS. 5 credits
Prerequisites: EDF 345, EDS 400; taken concurrently with EDS 403. Presents methods of teaching the language arts in secondary schools.

EDS 484—METHODS AND MATERIALS FOR FOREIGN LANGUAGE. 5 credits
Prerequisites: EDF 345, EDS 400; taken concurrently with EDS 403. Presents methods and materials of foreign language instruction, with emphasis on the newer techniques and materials.

EDS 494—ENGLISH IN THE SECONDARY SCHOOL. (Identical with EH 494.) 4 credits
Prerequisites: CEH 131, 132, 133; CHN 251, 252, 253, and one course in English. Designed to help prepare teachers by a study of the content, materials, methods, and objectives of the secondary English program.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

EDS 550—TEACHING MATHEMATICS IN THE JUNIOR HIGH SCHOOL. 4 credits*
Treats mathematics curriculum; instructional materials; directing the learning of mathematics.

EDS 551—TEACHING ALGEBRA IN THE SECONDARY SCHOOLS. 4 credits*
Prerequisite: 6 semester hours of college mathematics or consent of instructor. A study of the content and development of modern algebra in secondary schools with emphasis on techniques and materials of instruction.

EDS 552—TEACHING GEOMETRY IN THE SECONDARY SCHOOLS. 4 credits*
Prerequisite: 3 semester hours of college geometry or consent of instructor. A study of the content and development of modern geometry in secondary schools with emphasis on techniques and materials of instruction.

EDS 560—TEACHING SCIENCE IN THE SECONDARY SCHOOL. 4 credits*
Prerequisite: Basic knowledge of both physical and biological sciences. Content, method, materials and approaches to use in teaching science in the secondary school.

EDS 564—TEACHING THE PHYSICAL SCIENCES IN THE SECONDARY SCHOOL. 4 credits*
Prerequisite: EDS 400. An alternative to EDS 560. Methods and Materials for Teaching the Physical Sciences with emphasis on the teaching of the Physical Science Study Committee program, INTRODUCTORY PHYSICAL SCIENCE, I. P. S., et al.

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*Available for graduate major credit.

EDS 565—TEACHING THE EARTH SCIENCES IN THE SECONDARY SCHOOL. 4 credits*

Prerequisite: EDS 400. An alternative to EDS 560. Methods and Materials for Teaching the Earth Sciences with emphasis on the teaching of the Earth Sciences Curriculum Project, Investigating the Earth, ESCP.

EDS 577—TEACHING READING IN THE SECONDARY SCHOOLS. 4 credits*

Materials and methods for teachers of all subject fields for dealing with variations in reading ability among secondary students.

EDS 585—FOREIGN LANGUAGES IN THE SECONDARY SCHOOL (Identical with FLE 585). 4 credits

Problems of language learning in high school and junior college. Historical methods. Newer methods including use of audio-visual materials.

EDS 590—STUDENT ACTIVITIES IN THE SECONDARY SCHOOL. 4 credits*

An exploration of the purposes, phases, and operations of student activities. Designed to assist student activity directors, sponsors, and principals.

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*Available for graduate major credit.

GRADUATE COURSES

EDS 601—THE JUNIOR HIGH SCHOOL CURRICULUM. 4 credits
EDS 602—THE SECONDARY SCHOOL CURRICULUM. 4 credits
EDS 604—CURRICULUM DEVELOPMENT LABORATORY. 4 credits
EDS 605—EVALUATION IN THE SECONDARY SCHOOL PROGRAM. 4 credits
EDS 611—THE CORE PROGRAM IN THE SECONDARY SCHOOL. 4 credits
EDS 630—INDIVIDUAL WORK. 2 to 5 credits. Maximum 15 credits
EDS 635—SUPERVISION OF PRE-SERVICE TEACHERS. 4 credits
EDS 640—SOCIAL STUDIES IN THE SECONDARY SCHOOL. 4 credits
EDS 641—ECONOMIC EDUCATION IN THE SECONDARY SCHOOL. 4 credits
EDS 650—MATHEMATICS IN THE SECONDARY SCHOOL. 4 credits
EDS 651—ALGEBRA IN THE MODERN SECONDARY SCHOOL. 4 credits
EDS 652—GEOMETRY IN THE MODERN SECONDARY SCHOOL. 4 credits
EDS 660—SCIENCE IN THE SECONDARY SCHOOL. 4 credits
EDS 663—THE BIOLOGICAL SCIENCES IN THE SECONDARY SCHOOL. 4 credits
EDS 664—THE PHYSICAL SCIENCES IN THE SECONDARY SCHOOL. 4 credits
EDS 666—THE TEACHING OF SCIENCE TO EDUCATIONALLY DISADVANTAGED UNDERACHIEVERS. 4 credits. Maximum 8 credits
EDS 670—LANGUAGE ARTS: LANGUAGE AND COMPOSITION. 4 credits
EDS 671—LANGUAGE ARTS: LITERATURE. 4 credits
EDS 685—PROBLEMS OF FOREIGN LANGUAGE INSTRUCTION IN SECONDARY SCHOOLS. 4 credits
EDS 690—SPECIAL TOPICS. 2 to 5 credits
EDS 697—SUPERVISED RESEARCH. 1 to 5 credits
EDS 698—SUPERVISED TEACHING. 1 to 5 credits
EDS 700—SEMINAR IN SECONDARY EDUCATION. 4 credits

Education—Vocational, Technical, and Adult

INSTRUCTIONAL STAFF 1969-70

Hensel, J. W., *Chairman;* Beeman, C. E.; Carr, G. D.; Crews, J. W.; Grigsby, S. E.; Hunter, E. F.; Kurth, E. L.; Loften, W. T.; Perkins, R. P.; Young, F. O.

GENERAL COURSES

EDV 302—PRINCIPLES OF VOCATIONAL EDUCATION. 4 credits

Theories and principles of vocational education stressing the development, social and economic values, purposes, and scope of different programs of vocational education in our total educational program. A basic course for those preparing to teach vocational subjects.

EDV 303—METHODS IN VOCATIONAL EDUCATION. 4 credits

General methods of teaching vocational courses.

EDV 405—STUDENT TEACHING IN VOCATIONAL, TECHNICAL, AND ADULT EDUCATION. 4 to 16 credits
Maximum 16 credits

Prerequisites: See "Admission to Student Teaching in Any Teacher Education Program." Full time off-campus teaching in selected schools. No other courses may be taken during the student teaching quarter.

EDV 420—PROGRAM PLANNING IN VOCATIONAL EDUCATION 4 credits

Principles and procedures of planning and organizing vocational education programs. Emphasis is on planning and developing the total program, including the course of study, teaching calendars, community surveys, use of advisory groups, and evaluation.

GRADUATE COURSES

EDV 600—THE ADMINISTRATION OF VOCATIONAL EDUCATION. 4 credits
EDV 601—FOUNDATIONS OF PROGRAM PLANNING FOR VOCATIONAL EDUCATION. 4 credits
EDV 602—THE SUPERVISION OF VOCATIONAL EDUCATION. 4 credits
EDV 630—INDIVIDUAL WORK. 2 to 5 credits. Maximum 15 credits
EDV 690—SPECIAL TOPICS. 2 to 5 credits. Maximum 15 credits

Agricultural and Extension Education Section

INSTRUCTIONAL STAFF 1969-70

Loften, W. T., *Section Chairman;* Beeman, C. E.; Grigsby, S. E.; Young, F. O.

EDV 421—SPECIAL METHODS IN TEACHING VOCATIONAL AGRICULTURE. 4 credits

Prerequisite: EDV 303. Organization of the subject matter and methods of teaching agriculture.

EDV 423—LABORATORY PRACTICES IN TEACHING AGRICULTURE. 4 credits

Prerequisites: EDV 302, EDV 303, and EDV 421.
Laboratory practices in teaching mechanics and other operative skills, conducting field and laboratory classes, providing space and teaching facilities.

EDX 180—FOOD AND AGRICULTURAL SCIENCE CONCEPTS AND STUDIES. 3 credits

The different programs of the Institute of Food and Agricultural Sciences are discussed in terms of basic concepts, professional standards, and academic requirements.

EDX 301—AGRICULTURAL LEADERSHIP. 4 credits

Extension philosophy, programs, methods, and leadership principles; history of federal, state, and local leadership in the development of the cooperative extension service.

EDX 407—AGRICULTURAL YOUTH PROGRAMS. 4 credits
Prerequisite: Junior standing. Designed to develop understandings and abilities in conducting 4-H, FFA, and other agricultural youth programs.

EDX 430—INDIVIDUAL WORK IN AGRICULTURAL AND EXTENSION EDUCATION. 1 to 8 credits
Prerequisite: Consent of the instructor.
Topics and special problems selected from such fields as 4-H and FFA work, demonstrations, farm and home management, and rural development.

GRADUATE COURSES

EDV 620—HISTORY AND PHILOSOPHY OF AGRICULTURAL EDUCATION. 4 credits
EDV 621—DEVELOPING COMMUNITY PROGRAMS IN AGRICULTURE. 3 credits
EDV 622—DEVELOPING CURRICULAR MATERIALS FOR PROGRAMS IN AGRICULTURE. 3 credits
EDV 623—PROBLEMS IN AGRICULTURAL EDUCATION. 2 to 9 credits. Maximum 9 credits
EDV 624—SUPERVISED OCCUPATIONAL EXPERIENCES IN AGRICULTURAL EDUCATION. 4 credits
EDV 625—ADULT EDUCATION IN AGRICULTURE. 5 credits
EDX 601—ADVANCED AGRICULTURAL LEADERSHIP. 4 credits Maximum 12 credits
EDX 604—AGRICULTURAL AND EXTENSION EDUCATION THROUGH GROUP ACTION. 4 credits. Maximum 12 credits
EDX 621—RESEARCH IN AGRICULTURAL AND EXTENSION EDUCATION. 1 to 4 credits. Maximum 9 credits

Business Education Section

INSTRUCTIONAL STAFF 1969-70

Crews, J. W., *Section Chairman;* Carr, G. D.; Hunter, E. F.

EDV 140—INTRODUCTORY TYPEWRITING. 4 credits
An introduction to touch typewriting. Not open to students with previous instruction in typewriting except with departmental approval.

EDV 242—ADVANCED TYPEWRITING. 3 to 5 credits
Prerequisite: EDV 141 or permission of department. The typewriter as a tool in business with emphasis on teaching of typewriting and increased skill. Open to all qualified students. Required for certification of business education majors.

EDV 243—INTRODUCTORY SHORTHAND. 5 credits
The basic theory of Gregg shorthand. Not open to students with previous instruction in shorthand except with departmental approval.

EDV 245—SHORTHAND DICTATION. 5 credits
Prerequisites: EDV 244 or permission of department. Skill in taking dictation is developed. Required for teacher certification in shorthand.

EDV 344—SHORTHAND DICTATION AND TRANSCRIPTION. 5 credits
Prerequisites: EDV 242 and 245 or permission of department. Skill developed in ability to transcribe shorthand notes accurately and rapidly. Emphasis given to the teaching of shorthand. Open to all qualified students. Required for certification of business education majors.

EDV 345—PRINCIPLES OF OFFICE PROCEDURES. 4 credits
The principles of office management, personnel management, and office procedures with implications for teachers of business.

EDV 346—OFFICE MACHINES TECHNIQUES. 4 credits
Prerequisite: EDV 140 or permission of department. A survey course designed to acquaint students with the capabilities and limitations of selected voice-writing machines, duplicating machines, adding machines, and calculating machines.

EDV 441—METHODS AND MATERIALS FOR TEACHING OFFICE EDUCATION SUBJECTS. 4 credits
Prerequisites: EDF 345, EDS 400, EDS 403. Methods of teaching office education subjects including typewriting, shorthand, office and secretarial practice.

EDV 442—METHODS AND MATERIALS FOR TEACHING BOOKKEEPING AND BASIC BUSINESS SUBJECTS. 4 credits
Prerequisites: EDF 345, EDS 400, EDS 403. Methods of teaching bookkeeping, general business, business law, salesmanship, and business arithmetic.

EDV 443—SUPERVISED WORK EXPERIENCE IN BUSINESS. 5 to 10 credits
Practical experience in business correlated with curriculum design and instructional practices.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

EDV 540—PRINCIPLES OF BUSINESS EDUCATION. 4 credits*
Open only to business teachers and business teacher trainees. The principles, purposes, and programs of business education are studied in relation to the total secondary school program.

GRADUATE COURSES

EDV 640—TEACHING OFFICE MACHINES. 4 credits
EDV 641—TEACHING SECRETARIAL STUDIES. 4 credits
EDV 642—TEACHING BOOKKEEPING AND CONSUMER BUSINESS SUBJECTS. 4 credits
EDV 643—MATERIALS AND METHODS OF TEACHING GENERAL BUSINESS. 4 credits
EDV 644—PROBLEMS IN BUSINESS EDUCATION. 4 credits
EDV 645—SEMINAR AND WORK EXPERIENCE IN BUSINESS EDUCATION. 8 credits
EDV 646—METHODS AND MATERIALS FOR BLOCK-TIME INSTRUCTION IN OFFICE EDUCATION. 4 credits
EDV 647—RESEARCH SEMINAR IN BUSINESS EDUCATION. 4 credits
EDV 655—COOPERATIVE EDUCATION. 4 credits

Technical and Adult Education Section

INSTRUCTIONAL STAFF 1969-70

Kurth, E. L., *Section Chairman;* Perkins, R. P.

EDV 460—INTRODUCTION TO TECHNICAL EDUCATION. 4 credits
Formal education and training in industrial, semi-professional, and technical occupations. Changing concepts of occupational preparation affecting existing labor force and new entrants. Developments in technical education for post high school programs.

*Available for graduate major credit.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

EDV 560—TECHNICAL EDUCATION PROGRAM DEVELOPMENT. 4 credits*

Essentials of educational program planning and development. Objectives, organization, staffing, finances, and facilities. Special attention to the use of surveys, advisory committees, occupational analysis, and the recruitment, selection, guidance, and placement of students in various occupational programs.

EDV 570—EDUCATION FOR ADULTS. 4 credits*

Characteristics of the principal age groups in adult education (young adults, middle-aged adults, and older adults). The variations added by socio-economic and other community conditions are examined and the implications for adult education programs explored.

EDV 571—METHODS, MATERIALS AND EVALUATION IN ADULT EDUCATION. 4 credits*

Prerequisite: EDV 570. Study and use of the methods and materials most effective and appropriate for various adult groups. Applications of evaluative principles and procedures to the appraisal of adult education endeavors.

GRADUATE COURSES

EDV 660—TECHNICAL EDUCATION IN POST HIGH SCHOOL PROGRAMS. 4 credits

EDV 661—TEACHING TECHNICAL EDUCATION. 4 credits

EDV 670—ADULT EDUCATION: PROGRESS AND PROSPECTS. 4 credits

EDV 697—SUPERVISED RESEARCH. 1 to 5 credits

EDV 698—SUPERVISED TEACHING. 1 to 5 credits

EDV 770—ADULT EDUCATION IN JUNIOR COLLEGE. 4 credits

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*Available for graduate major credit

College of Engineering

AEROSPACE ENGINEERING

AGRICULTURAL ENGINEERING

CHEMICAL ENGINEERING

CIVIL ENGINEERING

COASTAL AND OCEANOGRAPHIC ENGINEERING

ELECTRICAL ENGINEERING

ENGINEERING GRAPHICS

ENGINEERING SCIENCE AND MECHANICS

ENVIRONMENTAL ENGINEERING

INDUSTRIAL AND SYSTEMS ENGINEERING

MECHANICAL ENGINEERING

METALLURGICAL AND MATERIALS ENGINEERING

NUCLEAR ENGINEERING SCIENCES

ENGINEERING COMMON COURSES

Aerospace Engineering

INSTRUCTIONAL STAFF 1969-70

Clarkson, M. H.; *Chairman;* Anderson, R. C.; Fearn, R. L.; Hoover, J. W.; Keefer, D. R.; Leadon, B. M.; McRae, T. G.; Milton, J. E.; Myers, O. E.; Ross, C. A.; Williams, D. T.

ASE 300—INTRODUCTION TO AEROSPACE ENGINEERING. 3 credits

Prerequisite: PS 215. Aerodynamics and hydrodynamics of various vehicles. Fundamentals of aircraft and space flight.

ASE 301—AEROSPACE ANALYSIS 1. 3 credits

Prerequisite: ASE 300. Corequisite: MS 305. The application of mathematical methods to aerospace problems including vector and tensor fields and matrix algebra.

ASE 302—AEROSPACE ANALYSIS 2. 3 credits

Prerequisite: ME 360 or consent of instructor. A study of the application of thermodynamics to propulsion and aerodynamics. Equilibrium gaseous systems. Thermodynamics of radiation. Properties of cryogenic rocket fuels.

ASE 303—AEROSPACE ANALYSIS 3. 3 credits

Prerequisite: ASE 301 and MS 305. Introduction to the mathematical and physical analyses used in the aerospace sciences. Emphasis on numerical solution of nonlinear differential systems with two point boundary conditions.

ASE 401—AERODYNAMICS 1. 5 credits

Prerequisites: ASE 301. Inviscid and viscous flows; one-dimensional compressible flows and applications. Lectures, laboratory and problem solving sessions.

ASE 402—AERODYNAMICS 2. 3 credits

Prerequisites: ASE 401. Boundary layer theory. Laminar, transitional and turbulent boundary layers; transport of momentum defect, heat and mass.

ASE 403—AERODYNAMICS 3. 3 credits

Prerequisite: ASE 401. Airfoil and wing theory.

ASE 404—AEROSPACE LABORATORY. 1 credit

Prerequisite: ASE 401. Laboratory experiments in aerospace engineering.

ASE 441—AEROSPACE STRUCTURES 1. 5 credits

Prerequisites: ESM 305, ASE 300. Types of flight structures. Flight and dynamic loads. Bending and shear analysis of flight structures. Lecture, laboratory and problem solving sessions.

ASE 442—AEROSPACE STRUCTURES 2. 3 credits

Prerequisite: ASE 441. Matrix analyses of complex flight structures. Thermal stresses in flight structures.

ASE 443—AEROSPACE STRUCTURES 3. 3 credits

Prerequisite: ASE 441. Allowable loads and strength analysis. Analysis of pressure loaded flight structures.

ASE 444—AEROSPACE STRUCTURES LABORATORY. 1 credit

Prerequisite: ASE 441. Experimental methods of stress determination in flight structures. Proof test of structures and demonstration of failure modes.

ASE 451—INTRODUCTORY AEROELASTICITY. 3 credits

Prerequisites: ASE 441, ASE 401 and ESM 520 or ME 480. Vibrations in typical flight structures. Self-excited aeroelastic systems. Stability of oscillating system. Fundamentals of surface flutter. Static aeroelastic effects. Acoustics in aerospace applications.

ASE 461—AEROSPACE PROPULSION 1. 5 credits

Prerequisite: ASE 302. Supersonic diabatic flow: the turbojet; the ramjet. Rocket performance criteria. Rocket fuels; design of liquid and solid fueled rockets. High performance systems for aerospace propulsion. Lectures, laboratory experiments, and problem solving sessions.

ASE 462—AEROSPACE PROPULSION 2. 3 credits

Prerequisite: ASE 461. Requirements for propulsion systems on space missions. High specific impulse systems: nuclear rocket; electric propulsion. Special space applications.

ASE 471—ELEMENTS OF MANNED ATMOSPHERIC AND SPACE FLIGHT. 3 credits

Introduction to man's requirements in atmospheric and space flight. An engineering approach to psychic stress relief and physiological well-being in the aerospace environment.

ASE 475—INSTRUMENTATION FOR AEROSPACE ENGINEERS. 3 credits

An introduction to the techniques of modern instrumentation for aerospace testing, research and development.

ASE 485—AEROSPACE DESIGN 1. 3 credits

Prerequisites: ASE 401, ASE 441, ASE 461. Application of the principles of analysis and design to aerospace vehicle problems.

ASE 486—AEROSPACE DESIGN 2. 3 credits

Prerequisite: ASE 485. Second part of ASE 485-487.

ASE 487—AEROSPACE DESIGN 3. 3 credits

Prerequisite: ASE 486. Third part of ASE 485-487.

ASE 491—AEROSPACE PROJECT 1. 2 credits

Corequisite: Senior Engineering Classification. Student projects carried out under the supervision of aerospace faculty.

ASE 492—AEROSPACE PROJECT 2. 2 credits

Second part of ASE 491-493.

ASE 493—AEROSPACE PROJECT 3. 2 credits

Third part of ASE 491-493.

ASE 494—PROBLEMS IN ASTRONAUTICS. 3 credits

Prerequisite: ASE 301. Newtonian orbits; celestial coordinate systems. Observations in the solar system. Review of astrophysics. Instruments used in space science.

ASE 498—SPECIAL PROBLEMS. 1 to 6 credits

Prerequisites: Recommendation of Department Chairman. Selected problems or projects in the student's major field of engineering study. May be repeated with change of content up to a maximum of 6 credits.

ASE 499—PRACTICAL WORK IN AEROSPACE ENGINEERING. 1 to 5 credits

Prerequisite: 4 EG classification; one term of industrial employment, including extra work according to a pre-approved outline. Practical engineering work under industrial supervision, as set forth in College Regulations.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ASE 570—PRINCIPLES OF GUIDANCE AND CONTROL. 3 credits*

Prerequisite: MS 305 or permission of instructor. Review of current missile guidance systems. Relations between guidance and control. The control function: open and

*Available for graduate major credit.

closed loop servo systems. Detection and information gathering as a factor in guidance precision.

GRADUATE COURSES

ASE 601—ADVANCED PLASMA TOPICS. 3 credits
ASE 602—PROBE TECHNIQUES FOR PLASMA DIAGNOSTICS. 3 credits
ASE 611—THE DYNAMICS OF REAL GASES 1. 3 credits
ASE 612—THE DYNAMICS OF REAL GASES 2. 3 credits
ASE 613—THE DYNAMICS OF REAL GASES 3. 3 credits
ASE 631—ADVANCED AEROSPACE STRUCTURES 1. 3 credits
ASE 632—ADVANCED AEROSPACE STRUCTURES 2. 3 credits
ASE 633—ADVANCED AEROSPACE STRUCTURES 3. 3 credits
ASE 650—PHYSIOLOGICAL ASPECTS OF ATMOSPHERIC AND SPACE FLIGHT. 3 credits
ASE 661—ASTRONAUTICAL MECHANICS 1. 3 credits
ASE 662—ASTRONAUTICAL MECHANICS 2. 3 credits
ASE 663—ASTRONAUTICAL MECHANICS 3. 3 credits
ASE 670—CONTROL TECHNIQUES IN AEROSPACE SYSTEMS. 3 credits
ASE 671—ADVANCED SPACE INSTRUMENTATION LABORATORY. 1 to 9 credits. Maximum 9 credits
ASE 681—ADVANCED AEROSPACE DESIGN. 1 to 9 credits Maximum 15 credits
ASE 684—AEROSPACE RESEARCH. 1 to 9 credits Maximum 15 credits
ASE 690—GRADUATE SEMINAR. 1 credit. Maximum 12 credits
ASE 691—SPECIAL TOPICS IN AEROSPACE ENGINEERING. 1 to 9 credits Maximum 15 credits
ASE 699—MASTER'S RESEARCH. 1 to 15 credits
ASE 799—DOCTORAL RESEARCH. 1 to 15 credits

Agricultural Engineering

COLLEGE OF AGRICULTURE

COLLEGE OF ENGINEERING

INSTRUCTIONAL STAFF 1969-70

Smerdon, E. T., *Chairman;* Baird, C. D.; Bagnall, L. O.; Choate, R. E.; Fluck, R. C.; Kinard, D. T.; Myers, J. M.; Nordstedt, R. A.; Overman, A. R.; Rogers, C. J.; Shaw, L. N.

AGE 318—AGRICULTURAL FIELD MACHINES 1. 3 credits

Prerequisite: ESM 302. Machines and mechanized systems in agricultural production; functional requirements, operating characteristics, economic considerations, and selection.

AGE 403—SPECIAL TOPICS. 3 credits

Prerequisite: Four courses in agricultural engineering. Preparation of special reports on topics of current interest in the field of agricultural engineering.

AGE 412—AGRICULTURAL TRACTORS AND POWER UNITS. 3 credits

Prerequisites: ME 360 and AGE 318. Analysis of power requirements in agricultural production; correlation of principles of design, engine characteristics, and basic configuration of tractive and stationary power units with function requirements.

AGE 414—AGRICULTURAL FIELD MACHINES 2. 3 credits
Prerequisite: AGE 318. Trends in design and development of new agricultural machines, selection of components; fluid power transmission, vibrations, and dimensional analysis.

AGE 415—SOIL AND WATER CONSERVATION ENGINEERING. 3 credits
Prerequisite: ESM 311. An introduction to basic hydrology; design of terraces, waterways, dams, reservoirs and grade control structures as used in soil and water conservation.

AGE 416—AGRICULTURAL DRAINAGE ENGINEERING. 3 credits
Prerequisite: ESM 311. Fundamentals of design of land drainage; open channel and underground systems with consideration given to soil and crop requirements.

AGE 417—AGRICULTURAL IRRIGATION ENGINEERING. 3 credits
Prerequisites: ESM 311 and SLS 330. Fundamental principles of irrigation; consideration is given to hydraulics, soil-plant-moisture relationships, climate and cost benefit analysis.

AGE 418—AGRICULTURAL STRUCTURES AND EQUIPMENT 1. 3 credits
Prerequisite: ESM 303. Functional and economic requirements of agricultural structures, construction materials and procedures, load estimation and structural design techniques.

AGE 419—AGRICULTURAL STRUCTURES AND EQUIPMENT 2. 3 credits
Prerequisite: ME 430. The establishment and control of structurally influenced environments for animal production and crop storage, thermal and psychrometric aspects and supporting utilities.

AGE 435—AGRICULTURAL PROCESS ENGINEERING 1. 3 credits
Prerequisites: EE 301 and ESM 311. Principles of handling and processing of agricultural products; functional requirements of equipment and systems for such operations as conditioning, curing, drying, conveying, and mixing.

AGE 436—AGRICULTURAL PROCESS ENGINEERING 2. 3 credits
Prerequisite: AGE 435. Second half of the sequence AGE 435-436.

AGE 498—SPECIAL PROBLEMS IN AGRICULTURAL ENGINEERING.
1 to 6 credits
May be repeated up to a maximum of 12 credits in the course.
Prerequisite: Recommendation of Department Chairman. Selected problems or projects in the student's major field of engineering study.

AGE 499—PRACTICAL WORK IN AGRICULTURAL ENGINEERING.
1 to 5 credits
Prerequisite: 4EG Classification; one term industrial employment, including extra work according to preapproved outline. Practical engineering work under industrial supervision, as set forth in the College of Engineering Regulations.

GRADUATE COURSES

AGE 601—SEMINAR. 1 credit
AGE 602—RESEARCH METHODS IN AGRICULTURAL ENGINEERING.
3 credits
AGE 603—INSTRUMENTATION IN AGRICULTURAL ENGINEERING RESEARCH. 4 credits
AGE 670—NON-THESIS RESEARCH IN AGRICULTURAL ENGINEERING.
0 to 5 credits. Maximum 10 credits
AGE 671—ADVANCED SOIL AND WATER MANAGEMENT ENGINEERING
4 credits
AGE 672—ADVANCED FARM MACHINERY. 4 credits
AGE 673—ADVANCED FARM BUILDINGS. 4 credits

AGE 674—ADVANCED AGRICULTURAL PROCESS ENGINEERING. 4 credits
AGE 699—MASTER'S RESEARCH. 1 to 15 credits

Chemical Engineering

INSTRUCTIONAL STAFF 1969-70

Walker, R. D., *Acting Chairman;* Bennett, R. B.; Fahien, R. W.; Gubbins, K. E.; Johns, L. E., Jr.; Keppel, R. A.; Kirmse, D. W.; May, F. P.; Nolan, W. J.; O'Connell, J. P.; Reed, T. M.; Reed, X. B., Jr.; Schweyer, H. E.; Tyner, M.; Westerberg, A. W.

CHE 301—INTRODUCTION TO CHEMICAL ENGINEERING. 5 credits
Prerequisites PS 217, CY 213. The conservation laws of mass and energy applied to the solution of industrial chemical process problems.

CHE 302—CHEMICAL ENGINEERING LAB 1. 1 credit
Conservation laws, process measurements in engineering chemistry.

CHE 303—COMPUTER MODEL FORMULATION. 3 credits
Prerequisite: MS 304. Corequisite: MS 305. Solutions of scientific and engineering problems using digital computers. Formulation of models for describing physical processes, numerical analysis, computer programming.

CHE 311—PROCESS SYSTEMS ANALYSIS. 2 credits
Prerequisite: CHE 301, MS 305. Analysis of transients in process systems. Analog computation in chemical engineering.

CHE 312—CHEMICAL ENGINEERING LABORATORY 2. 1 credit
Prerequisite or corequisite: CHE 311. Laboratory work associated with CHE 311.

CHE 333—CHEMICAL ENGINEERING THERMODYNAMICS 1. 3 credits
Prerequisite: MS 305. The principles of classical and statistical themodynamics, and their application to systems of constant composition.

CHE 343—TRANSPORT PHENOMENA. 3 credits
Prerequisite: MS 305. Flux laws and conservation equations for heat, mass and momentum transport in rectangular, cylindrical and spherical geometries; applications to laminar and turbulent flow systems.

CHE 344—CHEMICAL ENGINEERING LABORATORY 4. 1 credit
Prerequisite or corequisite: CHE 343. Laboratory work associated with CHE 343.

CHE 345—INTERFACIAL TRANSPORT PHENOMENA. 3 credits
Prerequisite: CHE 343. Heat, mass and momentum transport through interfaces. Heat and mass transfer coefficients and friction factor. Dimensional analysis. Macroscopic balances. Applications.

CHE 353—MATERIALS OF ENGINEERING. 3 credits
Prerequisite: CHE 333 or ME 360. Interpretation of fundamental atomic and molecular forces; chemical bonding and microscopic structure. Correlation and prediction of macroscopic properties of organic and inorganic materials. Engineering applications.

CHE 363—SOLID-FLUID SYSTEMS DESIGN. 3 credits
Prerequisite: CHE 343. Design considerations of fluid dynamics; separations based on particle dynamics; size modification and measurement of solids; phase dispersions.

CHE 375—PROCESS INSTRUMENTAL ANALYSIS. 3 credits
Prerequisite: CY 213. Principles of process measurements and monitoring of process streams.

CHE 376—CHEMICAL ENGINEERING LABORATORY 3. 1 credit
Corequisite: CHE 375. Laboratory work associated with CHE 375.

CHE 411—PROCESS CONTROL THEORY. 3 credits
Prerequisite: CHE 311 or consent of instructor. Available for graduate major credit. The analysis and automatic control of simple process systems.

CHE 412—CHEMICAL ENGINEERING LABORATORY 5. 1 credit
Corequisite: CHE 411. Laboratory work associated with CHE 411.

CHE 413—PROCESS OPTIMIZATION. 3 credits
Prerequisite: CHE 411. Review of mathematical techniques for handling multistage decision problems encountered in process design and control. Introduction to dynamic programming.

CHE 421—CHEMICAL KINETICS AND PROCESSING. 3 credits
Prerequisite: CHE 343, CHE 433. Concepts of elementary, complex and catalytic kinetics as applied to the engineering design of batch, backmix, tubular and fluidized bed reactors.

CHE 422—CHEMICAL ENGINEERING LABORATORY 7. 1 credit
Prerequisite or Corequisite: CHE 421. Laboratory work associated with CHE 421.

CHE 423—REACTOR DYNAMICS AND DESIGN. 3 credits
Prerequisite: CHE 421. Analysis of chemical reactor transient behavior and stability. Pilot plant models and scale up methods. Introduction to optimal design and its application.

CHE 433—CHEMICAL ENGINEERING THERMODYNAMICS 2. 3 credits
Prerequisite: CHE 333 or ME 360. The application of thermodynamic principles to systems of variable composition, including the study of phase and chemical equilibria.

CHE 435—APPLIED MOLECULAR THEORY. 3 credits
Prerequisite: CHE 433. The applications of statistical thermodynamics and kinetic theory in the description of the behavior of pure fluids and fluid mixtures.

CHE 443—ELEMENTS OF CHEMICAL ENGINEERING 1. 3 credits
Prerequisite: MS 305, PS 217, CY 213. A survey of chemical engineering.

CHE 445—ELEMENTS OF CHEMICAL ENGINEERING 2. 3 credits
Prerequisite: CHE 443. A continuation of CHE 443.

CHE 447—ELEMENTS OF CHEMICAL ENGINEERING 3. 3 credits
Prerequisite: CHE 445. A continuation of CHE 445.

CHE 462—CHEMICAL ENGINEERING LABORATORY 6. 2 credits
Prerequisite: CHE 345 or corequisite: CHE 363. Laboratory work associated with CHE 345 and CHE 363.

CHE 463—STAGEWISE SEPARATION DESIGN. 3 credits
Prerequisite: CHE 311. Theory, design and evaluation of staged diffusional mass transfer processes including distillation, absorption, adsorption and extraction.

CHE 464—CHEMICAL ENGINEERING LABORATORY 8. 2 credits
Prerequisite or corequisite: CHE 463. Laboratory work associated with CHE 463.

CHE 471—PROCESS COST ESTIMATION. 3 credits
Prerequisite: CHE 345, CHE 363. Cost estimations for chemical processes. Investment requirements, operating costs and prices. Economic balance, cyclic operations and elementary profitability.

CHE 473—PROCESS DESIGN. 3 credits

Prerequisite: CHE 421. Corequisites: CHE 463, CHE 471. Elementary design of conventional processes, including selection of process, equipment sizing, process specifications, economic evaluation, safety in design.

CHE 475—ADVANCED PROCESS DESIGN. 3 credits

Prerequisite: CHE 473. An extension of CHE 473 involving more creative effort and less conventional process systems.

CHE 481—PROFESSIONAL SEMINAR. 1 credit

CHE 492—CHEMICAL ENGINEERING LABORATORY 9. 1 credit

Prerequisite: CHE 464. Individual laboratory work not necessarily associated with a particular course.

CHE 498—SPECIAL PROBLEMS IN CHEMICAL ENGINEERING. 1 to 6 credits

May be repeated for a maximum of 12 credits

CHE 499—PRACTICAL WORK IN CHEMICAL ENGINEERING. 1 to 5 credits

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

CHE 503—MATHEMATICAL METHODS IN CHEMICAL ENGINEERING. 3 credits*

Prerequisite: CHE 345, or consent of Instructor. The application of mathematics to chemical engineering calculations, including ordinary, and partial differential equations. Numerical, analytical and computer calculations.

CHE 512—PROCESS SYSTEMS LABORATORY. 3 credits*

Prerequisite: CHE 411. Measuring instruments, analog data manipulation, and signal transmission in chemical process systems.

CHE 540—MULTIDIMENSIONAL TRANSPORT PHENOMENA. 3 credits*

Prerequisite: CHE 343. Equations of change for energy, mass, and momentum transport in vector form applied to multidimensional problems.

CHE 547—ELECTROCHEMICAL ENGINEERING. 3 credits*

Corequisites: CY 453, CHE 463, or equivalents. Application of the principles of transport phenomena and mass transfer theory to the analysis of electrochemical processes, and to problems of scale-up and design.

CHE 551—POLYMERIC MATERIALS. 3 credits*

Prerequisite: CHE 353 or MTL 300. Theoretical and practical aspects of plastics, elastomers, fibers, coatings and other polymeric materials.

CHE 573—ORGANIC CHEMICAL PROCESSING. 3 credits*

Prerequisite: CY 362. The fundamental principles involved in the manufacture of organic compounds.

CHE 576—PROCESS ECONOMICS. 3 credits*

Prerequisite: Senior classification. Engineering economy principles in the chemical field. Time value of money and profitability. Linear programming and replacements. Chemical industry economics and finance, computer applications.

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*Available for graduate major credit.

GRADUATE COURSES

CHE 601–GRADUATE SEMINAR.	1 credit
CHE 602–CHEMICAL ENGINEERING CALCULATIONS.	2 credits
CHE 603–MODELS AND METHODS.	3 credits
CHE 604–MULTIDIMENSIONAL AND DISCRETE SYSTEMS.	3 credits
CHE 605–APPLIED FIELD THEORY.	3 credits
CHE 606–APPLIED STATISTICS AND PROBABILISTIC SYSTEMS.	3 credits
CHE 610–PROCESS DYNAMICS 1.	3 credits
CHE 611–PROCESS DYNAMICS 2.	3 credits
CHE 614–COMPUTER CONTROL OF PROCESSES.	3 credits
CHE 615–OPTIMIZATION TECHNIQUES.	3 credits
CHE 616–PROCESS SYSTEMS OPTIMIZATION.	3 credits
CHE 617–PROCESS SYSTEMS ENGINEERING.	3 credits
CHE 621–CHEMICAL ENGINEERING KINETICS.	3 credits
CHE 622–REACTOR DESIGN AND OPTIMIZATION.	3 credits
CHE 626–TRANSPORT PROPERTIES AND IRREVERSIBLE THERMODYNAMICS.	3 credits
CHE 631–THERMODYNAMICS OF REACTION AND PHASE EQUILIBRIA.	3 credits
CHE 632–APPLIED STATISTICAL MECHANICS.	3 credits
CHE 633–STATISTICAL THERMODYNAMICS.	3 credits
CHE 641–FUNDAMENTAL TRANSPORT PHENOMENA.	3 credits
CHE 642–INTERFACIAL TRANSPORT PHENOMENA.	3 credits
CHE 643–TURBULENT TRANSPORT PHENOMENA.	3 credits
CHE 644–ADVANCED TRANSPORT PHENOMENA.	3 credits
CHE 645–RHEOLOGY.	3 credits
CHE 646–NON-NEWTONIAN FLUID DYNAMICS.	3 credits
CHE 647–CHEMICAL ENERGY CONVERSION.	3 credits
CHE 648–PARTICULATE SYSTEMS.	3 credits
CHE 649–APPLIED FLUID DYNAMICS.	3 credits
CHE 650–ENGINEERING PROPERTIES OF ORGANIC MATERIALS.	3 credits
CHE 651–MACROMOLECULAR MATERIALS.	3 credits
CHE 662–MASS TRANSFER OPERATIONS.	3 credits
CHE 663–HEAT TRANSFER OPERATIONS.	3 credits
CHE 665–STAGEWISE SEPARATIONS PROCESSES.	3 credits
CHE 671–PROCESS ENGINEERING.	3 credits
CHE 672–PROCESS EQUIPMENT DESIGN.	3 credits
CHE 673–PROCESS AND PLANT DESIGN.	3 credits
CHE 676–PROCESS ECONOMY ANALYSIS.	3 credits
CHE 677–BIOCHEMICAL ENGINEERING.	3 credits
CHE 680–ADVANCED SEMINAR IN CHEMICAL ENGINEERING.	2 credits Maximum 6 credits
CHE 681–SEMINAR IN PROCESS CONTROL.	2 credits Maximum 6 credits
CHE 682–SEMINAR IN TRANSPORT PHENOMENA.	2 credits Maximum 6 credits
CHE 683–SEMINAR IN THERMODYNAMICS.	2 credits Maximum 6 credits
CHE 685–ADVANCES IN SEPARATIONS PROCESSES.	3 credits
CHE 686–ADVANCES IN PROCESS SYSTEMS ENGINEERING.	3 credits
CHE 687–ADVANCES IN NUMERICAL AND ANALYTICAL COMPUTATION.	3 credits
CHE 690–SPECIAL TOPICS IN CHEMICAL ENGINEERING 1.	1 to 6 credits Maximum 12 credits
CHE 691–SPECIAL TOPICS IN CHEMICAL ENGINEERING 2.	1 to 6 credits Maximum 12 credits
CHE 692–SPECIAL TOPICS IN CHEMICAL ENGINEERING 3.	1 to 6 credits Maximum 12 credits
CHE 696–INDIVIDUAL WORK.	1 to 9 credits
CHE 699–MASTER'S RESEARCH.	1 to 15 credits
CHE 799–DOCTORAL RESEARCH.	1 to 15 credits

Civil Engineering

INSTRUCTIONAL STAFF 1969-70

Schaub, J. H., *Chairman;* Christensen, B. A.; Collier, C. A.; Dean, R. G.; Furman, T. deS.; Grantham, W. J.; Huber, W. C.; Kluge, R. W.; Petryk, S.; Pyatt, E. E.; Sawyer, H. A., Jr.; Schmertmann, J. H.; Self, M. W.; Shemdin, O. H.; Smith, R. E.; Spangler, B. D.; Susag, R. H.; Zimpfer, W. H.

CE 290—CIVIL ENGINEERING CONCEPTS. 2 credits

Prerequisite: MS 303. Introduction to the basic problems, methodology, and nomenclature of the subdisciplines of civil engineering.

CE 300—ENGINEERING MEASUREMENTS. 2 credits

Corequisite: MS 301. Theory of measurements. Sources of errors. Reliability, accuracy, precision, and probability of errors. Application to civil engineering.

CE 320—HYDRAULICS. 4 credits

Prerequisites: ESM 305 and MS 303. Fluid properties and flow forms. Hydrostatic forces and stability of floating bodies. Basic flow equations with applications. Similitude, models and analogs. Pipe flow. Waterhammers. Pumps and turbines. Hydrometry.

CE 340—CIVIL ENGINEERING MATERIALS. 4 credits

Prerequisite: ESM 303. A study of the principal materials used for engineering purposes with special attention to their mechanical properties and the importance of these properties to the engineer.

CE 370—MECHANICS OF ENGINEERING STRUCTURES. 4 credits

Corequisite: ESM 303 or ESM 305. Stress and strain analysis of statically determinate structures. Influence lines and criteria for maximum moments, shears, and reactions.

CE 371—STRESS ANALYSIS 1. 4 credits

Prerequisites: CE 370. Structural statics. Approximate solutions for statically indeterminate structures. Deflections of beams, frames and trusses. Solution of continuous beams.

CE 372—STRESS ANALYSIS 2. 3 credits

Prerequisite: CE 371. Analysis of statically indeterminate structures using virtual work, conjugate structure, moment distribution, slope-deflection. Influence lines.

CE 400—SURVEYING AND FIELD MEASUREMENTS. 2 credits

Prerequisite: CE 300. Familiarization with measuring instruments of civil engineering. Comparative evaluations. Applications to typical field problems.

CE 401—CONSTRUCTION METHODS AND MANAGEMENT. 4 credits

Prerequisite: Junior or senior class standing. Theory and practice of construction operations, equipment utilization and construction methods. Analysis of costs. Optimizing crew and equipment. Heavy equipment costs.

CE 403—STRUCTURAL ESTIMATING. 3 credits

Prerequisite: Junior or senior class standing. Cost estimating for structures. Economic comparisons of competitive structural systems. Construction methods and scheduling as they affect cost estimates.

CE 404—CONSTRUCTION METHODS OF COST ANALYSIS. 3 credits

Prerequisite: CE 402. Contractors' finances. Theory and practice of cost recording systems for construction. Principles and applications of construction time-keeping, cost-coding, estimates and bids. Competitive bidding strategy. Contractors' bonds, insurance and taxes. Methods of financing contractors' equipment, payroll, and materials.

CE 410—HIGHWAY ENGINEERING. 4 credits

Prerequisites: CE 340 and CE 400. Highway engineering practice, including organization, highway location, design, drainage, materials and construction.

CE 412—TRAFFIC ENGINEERING. 3 credits

Prerequisite: CE 410 or consent of instructor. Traffic movement, traffic surveys and studies, control devices, parking and zoning, roadway capacity and design.

CE 420—HYDRAULICS AND WATER RESOURCES ENGINEERING. 4 credits

Prerequisite: CE 320. Continuation of CE 320. Open channel flow, hydraulic jump and backwater curves. Introduction to groundwater hydraulics, sedimentation, transient flow and planning and design of water resources systems.

CE 421—WATER RESOURCES ENGINEERING. 3 credits

Prerequisites: CE 420 or consent of instructor. The hydrologic cycle. Hydrographs. Water law. Reservoirs and dams. Flood routing. River navigation. Hydroelectric power. Drainage and irrigation structures. Optimum design of water resources systems.

CE 430—PUBLIC WORKS PLANNING. 3 credits

Economic and physical planning of civil engineering works needed for public service. Engineering planning for public need, priority analysis, methods of financing public works. Time-value of money analysis, economic life, capital investment vs. maintenance costs.

CE 450—WATER SUPPLY ENGINEERING. 4 credits

Corequisite: CE 420. Source of supply, quality requirements, methods of treatment; the design of water systems including supply, treatment and distribution.

CE 451—SEWERAGE AND WASTEWATER TREATMENT. 4 credits

Prerequisites: CE 420 and CE 450 or consent of instructor. The hydraulics, materials, appurtenances, development, design and construction of municipal wastewater and storm water collection systems. The characteristics of wastewater and the physical, chemical and biological methods of treatment.

CE 460—SOIL MECHANICS. 3 credits

Prerequisites: GY 220 and CE 340. Composition, physical and chemical properties of soils, exploration, compaction, flow of water through soil, and the distribution of stress within a soil.

CE 461—SOIL MECHANICS & FOUNDATIONS. 4 credits

Prerequisite: CE 460. Consolidation, settlement, shearing resistance, stability of slopes and introduction to foundation design.

CE 462—FOUNDATION DESIGN. 3 credits

Prerequisites: CE 461 and CE 470. Foundation investigations, bearing capacity, testings, walls, piles, sheet piling.

CE 470—INTRODUCTION TO STRUCTURAL DESIGN. 5 credits

Prerequisites: CE 340, CE 372. Basic theory of design in structural materials. Design of members subjected to tension, compression and flexure. Design of connections.

CE 473—STEEL DESIGN. 3 credits

Prerequisite: CE 470. Continuation of CE 470. Theory and design of built-up structural members in steel; continuity in structures; introduction to design of structural systems.

CE 474—DESIGN IN REINFORCED CONCRETE. 4 credits

Prerequisite: CE 470. Ultimate strength and working stress theories with applications to the design of continuous beams and frames, floor slabs, footing and retaining walls. Elementary theory of prestressed concrete.

CE 490—CIVIL ENGINEERING SEMINAR. 1 credit

Prerequisite: Senior standing in civil engineering. Reports and discussion on civil engineering history, current developments, ethics, professionalism, registration, engineering organizations, publications and activities.

CE 491—CREATIVE ENGINEERING. 3 credits

Prerequisite: Senior standing in civil engineering. The methodology of developing creative solutions to complex problems is explored. New and unusual engineering problems are addressed. Feasibility reports are prepared and presented.

CE 498—SPECIAL PROBLEMS IN CIVIL ENGINEERING. 1 to 6 credits
Maximum 12 credits

Prerequisite: Recommendation of Department Chairman. Selected problems or projects in the student's major field of engineering study.

CE 499—PRACTICAL WORK IN CIVIL ENGINEERING. 1 to 5 credits

Prerequisite: 4 EG classification; one term industrial employment, including extra work according to a pre-approved outline. Practical engineering work under industrial supervision, as set forth in the College of Engineering Regulations.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

The following courses numbered in the 500's are designed primarily for advanced undergraduates and beginning graduate students and are available for graduate credit with the approval of the departmental advisor or the student's supervisory committee.

CE 501—CONSTRUCTION EQUIPMENT AND PROCEDURES. 3 credits

Prerequisite: CE 401 or consent of instructor. Studies in equipment resource utilization in heavy construction. Theory and practice of mechanized construction procedures. Cost analysis. Optimizing crew and equipment.

CE 502—CONSTRUCTION PLANNING AND SCHEDULING. 3 credits*

Prerequisite: CE 401. Principles of planning, scheduling, organizing and controlling construction projects. Studies in Critical Path Method and PERT, with resource leveling and financial scheduling. Linear programming applications in construction.

CE 505—CONSTRUCTION CONTRACTS & SPECIFICATIONS. 3 credits*

Prerequisite: ISE 441 or consent of instructor. Construction contracts specifications and plans; principles of formulation and interpretation. Construction labor regulations; practice and trends. Construction regulation agencies; service and authority. Contractors' ethics. Construction safety.

CE 510—HIGHWAY DESIGN. 3 credits*

Prerequisite: CE 410 or consent of instructor. Design of flexible pavements; design of concrete pavements.

CE 512—TRANSPORTATION ENGINEERING. 3 credits*

Prerequisite: CE 412 or permission of instructor. A review of transportation engineering including transportation systems, studies, and transportation plans.

CE 520—PROBLEMS IN HYDRAULICS. 3 credits*

Prerequisite or corequisite: CE 420 or consent of instructor. A problem course covering the application of the methods presented in CE 320 and CE 420. Emphasis on numerical methods and computer application.

CE 521—GEOHYDROLOGY. 3 credits*

Prerequisite: CE 420 or consent of instructor. Elements of surface and subsurface hydrology. Darcy's law. Permeability and its determination in laboratory and field.

*Available for graduate major credit.

Capillary forces. One dimensional flow. Flownets. Well hydraulics. Theis's recovery method. Numerical and experimental methods.

CE 522—OPEN-CHANNEL HYDRAULICS 1. 3 credits*

Prerequisite: CE 420 or consent of instructor. Classification of flow. Specific energy, critical depth, and hydraulic jump. Velocity and bed shear stress distributions. Backwater curves. Channel transitions. Spatially varied channel flow. Design of channel systems. Emphasis on steady flow.

CE 525—HYDRAULIC MOTORS AND PUMPS. 3 credits*

Prerequisite: CE 420 or consent of instructor. Introduction to the theory of hydraulic motors, turbines, pumps and transmissions.

CE 560—STRESS-DEFORMATION ANALYSIS OF SOIL MEDIA. 3 credits*

Prerequisite: CE 461 or consent of instructor. Nature of soil-water systems; analysis of stress, strains, equations of states; visco-elastic behavior of soils; failure in soil media.

CE 561—SOIL EXPLORATION FOR ENGINEERING DESIGN. 3 credits*

Prerequisite: CE 460 or equivalent. Methods of soil exploration; techniques of soil sampling and in-situ testing; field measurement of soil deformations and pressures; load tests (emphasis on field work and demonstrations).

CE 570—DESIGN IN PRESTRESSED CONCRETE. 3 credits*

Prerequisite: CE 474. The principles of prestressed concrete, materials used in prestressed concrete, design of post-tensioned and pre-tensioned beams for bending, bond and diagonal tension, review of existing specifications.

CE 571—PLANNING AND DESIGN OF INDUSTRIAL BUILDINGS. 3 credits*

Prerequisites: CE 473, CE 474. Application of planning and design principles to industrial structures; flat slab floors; design for continuity; study of building specifications and codes. Study of economic principles.

CE 572—DESIGN OF HIGHWAY BRIDGES. 3 credits*

Prerequisites: CE 473, CE 474. The design of highway bridges of reinforced and prestressed concrete and of steel; study of highway specifications; details of design; study of types and economics.

CE 573—DESIGN OF STRUCTURAL SYSTEMS. 3 credits*

Prerequisites: CE 473, CE 474. Introduction to planning and design of structural systems, including building frames, bridge systems, space structures. Economic considerations in selection of system.

CE 590—COMPUTER METHODS IN CIVIL ENGINEERING. 3 credits*

Prerequisite: Senior status and ISE 350. Introduction to electronic digital computer programming, including various coding systems. Practice in machine solution of civil engineering problems with introduction to matrix algebra techniques.

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* Available for graduate major credit.

GRADUATE COURSES

CE 610—ADVANCED HIGHWAY ENGINEERING. 3 or 6 credits
CE 620—GROUNDWATER HYDRAULICS. 3 credits
CE 622—OPEN-CHANNEL HYDRAULICS 2. 3 credits
CE 623—SEDIMENT TRANSPORT. 3 credits
CE 624—HYDRAULIC MODELS AND ANALOGS. 3 credits
CE 625—HYDRAULIC MEASUREMENTS IN LABORATORY AND FIELD. 3 credits
CE 626—ADVANCED HYDRAULIC PROBLEMS. 1 to 9 credits
Maximum 9 credits
CE 627—HYDRAULIC TRANSIENTS. 3 credits

CE 628—HYDRAULICS OF STRATIFIED FLOW. 3 credits
CE 631—COASTAL HYDRAULICS 1. 3 credits
CE 632—COASTAL HYDRAULICS 2. 3 credits
CE 633—COASTAL HYDRAULICS 3. 3 credits
CE 634—COASTAL SEDIMENT TRANSPORT. 3 credits
CE 635—HARBOR HYDRAULICS. 3 credits
CE 636—HARBORS 1. 3 credits
CE 637—HARBORS 2. 3 credits
CE 640—RHEOLOGICAL RESPONSE OF BITUMINOUS MATERIALS. 3 or 6 credits
CE 641—ADVANCED METAL STRUCTURES. 3 credits
CE 660—ADVANCED SOIL MECHANICS. 3 to 9 credits. Maximum 9 credits
CE 661—ADVANCED FOUNDATIONS. 3 or 6 credits. Maximum 6 credits
CE 662—STRUCTURE AND ENGINEERING PROPERTIES OF SOILS. 3 to 9 credits. Maximum 9 credits
CE 663—SOIL DYNAMICS. 3 to 6 credits
CE 664—SPECIAL STUDIES IN SOIL ENGINEERING. 1 to 9 credits Maximum 9 credits
CE 670—TOPICS IN STRUCTURAL DYNAMICS. 3 to 6 credits Maximum 6 credits
CE 671—ADVANCED REINFORCED CONCRETE. 3 to 6 credits Maximum 6 credits
CE 672—ANALYSIS OF STATICALLY INDETERMINATE STRUCTURES. 3 or 6 credits. Maximum 6 credits
CE 673—ADVANCED STRUCTURAL LABORATORY. 3 credits
CE 674—ADVANCED STRUCTURAL ANALYSIS. 3 to 6 credits Maximum 6 credits
CE 675—ADVANCED STRUCTURAL PROBLEMS. 1 to 9 credits Maximum 9 credits
CE 676—DESIGN OF FRAMED STRUCTURES. 3 to 6 credits Maximum 6 credits
CE 677—DESIGN OF FOLDED PLATES AND SHELLS. 3 to 6 credits Maximum 6 credits
CE 679—NONLINEAR STRUCTURAL ANALYSIS AND DESIGN. 3 to 9 credits Maximum 9 credits
CE 680—ADVANCED PRESTRESSED CONCRETE DESIGN. 3 credits
CE 690—MATRIX METHODS IN STRUCTURAL ANALYSIS. 3 to 6 credits Maximum 6 credits
CE 691—GRADUATE CIVIL ENGINEERING SEMINAR. 0 to 3 credits Maximum 3 credits
CE 699—MASTER'S RESEARCH. 1 to 15 credits
CE 799—DOCTORAL RESEARCH. 1 to 15 credits

Coastal and Oceanographic Engineering

INSTRUCTIONAL STAFF 1969-70

Dean, R. G., *Chairman;* Jen, Y.; Partheniades, E.; Purpura, J. A.; Shemdin, O. H.; Verma, A. P.

COE 400—INTRODUCTION TO COASTAL AND OCEANOGRAPHIC ENGINEERING 3 credits

Survey of important coastal and offshore processes. Introduction to theory of waves; littoral processes; beach erosion; air-sea interaction; tides; coastal engineering measurements.

COE 410—COASTAL HYDRAULICS. 3 credits

Prerequisite: COE 400 or consent of instructor. Applications of fluid mechanics in the coastal zone. Inlet dynamics; surface and internal waves; sediment transport and deposition; laboratory techniques and measurements.

COE 550—HARBOR ENGINEERING. 4 credits
Prerequisite: COE 400 or consent of instructor. Principles of design in harbors; wave penetration, harbor oscillation; movement of sediments and pollutants; design of harbor structures; principles of harbor operations.

GRADUATE COURSES

COE 610—OCEAN WAVES 1: LINEAR THEORY. 4 credits
COE 611—OCEAN WAVES 2: NONLINEAR THEORY. 4 credits
COE 612—OCEAN WAVE SPECTRA. 4 credits
COE 613—LONG WAVES AND TIDES. 4 credits
COE 620—COASTAL STRUCTURES 1: THEORY. 4 credits
COE 621—COASTAL STRUCTURES 2: APPLICATIONS. 4 credits
COE 630—LITTORAL PROCESSES. 4 credits
COE 631—SIMULATION TECHNIQUES. 4 credits
COE 632—SELECTED FIELD AND LABORATORY PROBLEMS 3 to 8 credits
COE 640—PHYSICAL OCEANOGRAPHY. 4 credits
COE 641—AIR-SEA INTERACTION 1: MICROSCALE. 4 credits
COE 642—AIR-SEA INTERACTION 2: MACROSCALE. 4 credits
COE 643—ADVANCED TOPICS IN COASTAL AND OCEANOGRAPHIC ENGINEERING. 1 to 6 credits
COE 699—MASTER'S RESEARCH. 1 to 15 credits

Electrical Engineering

INSTRUCTIONAL STAFF 1969-70

Chen, W. H., *Chairman;* Bailey, R. L.; Bailey, T. L.; Boykin, W. H.; Brodersen, A. J.; Bullock, T. E.; Chenette, E. R.; Childers, D. G.; Couch, L. W.; Cross, J. L.; Director, S. W.; Doty, K. L.; Dove, D. B.; Durling, A. E.; Elgred, O. I.; Fagen, W. F.; Forsman, M. E.; Gano, O. R.; George, T. S.; Harden, R. C.; Hsiao, M. Y.; Johnson, R. C.; Jones, L. E.; Kundel, T.; Kaiser, W. F.; Latour, M. H.; Li, S. S.; Lindholm, F. A.; Lipovski, G. J.; Madigan, J. R.; Manders, A. M.; Nevis, A. H.; Nickelson, W. R. D.; O'Malley, J. R.; Paige, A.; Priem, E. S.; Ramey, R. A.; Rosier, N. E.; Sah, T. C. (Lecturer); Sashoff, S. P.; Schoonmaker, L. E. (Emeritus); Shaffer, C. V.; Simons, F. O.; Skellett, A. M. (Emeritus); Smallwood, M. H.; Smith, E. F.; Smith, J. R.; Sutherland, A. D.; Tou, J. T.; van der Ziel, A.; Walker, R. L.; Walter, W. A; Watson, J. K.; Weil, J. (Emeritus); Wheeler, L. A.; Wing, A. H.; Yii, R.; Zetrouer, W. F.

EE 301—INTRODUCTION TO ELECTRICAL ENGINEERING. 5 credits
Prerequisites: MS 303, PS 216. An introduction to systems, circuits and devices in electrical and electronics engineering.

EE 302—ELEMENTS OF ELECTRICAL ENGINEERING. 5 credits
Prerequisites: MS 303, PS 216. An introduction to the theory and practice of electrical engineering for students not majoring in electrical engineering; circuits, machines, electronics, and systems.

EE 303—TRANSFORM METHODS IN ENGINEERING. 1 credit
Prerequisite: EE 301. Characteristics and characterization of linear systems. Laplace transforms in engineering. For non-electrical engineering majors.

EE 304—ELECTRONICS SYSTEMS AND INSTRUMENTATION. 4 credits
Prerequisite: EE 301. Corequisite: EE 320. Fundamental techniques of electronic instrumentation and control systems. For non-electrical engineering majors.

EE 320—ELECTRICAL ENGINEERING LABORATORY 1. 1 credit

Prerequisite: EE 301. The first and prerequisite course in a sequence which deals with electric instrumentation, devices, and systems. This laboratory sequence complements EE courses: EE 301, 321, 322, 323, 331, 332, 333, 352, 381, 382, 441, 451, 461, and 474.

EE 321—ELECTRONICS 1. 3 credits

Corequisite: EE 331. Physical principles and circuit models of semiconductor devices, and vacuum and photo tubes.

EE 322—ELECTRONICS 2. 5 credits

Prerequisites: EE 321, EE 352, EE 331. Physical principles and circuit models of electronic devices, esp. semiconductor devices; linear lowpass amplifier design and analysis; bandpass amplifiers; sinusoidal oscillators.

EE 330—ELECTRICAL ENGINEERING LABORATORY 2. 1 credit

Prerequisites: EE 320, EE 331. The second course in a sequence which deals with electric instrumentation, devices, and systems.

EE 331—CIRCUITS 1. 3 credits

Prerequisite: EE 301. Linear circuit analysis, transient, and steady-state. Network theorems, power and energy, magnetically coupled circuits, two-port networks, and polyphase circuits.

EE 332—CIRCUITS 2. 3 credits

Prerequisite: EE 331. Fourier analysis, resonance, singularity functions, and Laplace transforms.

EE 333—CIRCUITS 3. 3 credits

Prerequisites: EE 322, EE 332, EE 361. Convolution, applications of Fourier and Laplace transforms, filters, noise, and state variable methods.

EE 340—ELECTRICAL ENGINEERING LABORATORY 3. 1 credit

Prerequisites: EE 320, EE 322. The third course in a sequence which deals with electric instrumentation, devices, and systems.

EE 352—ELECTROMAGNETIC FIELDS 1. 4 credits

Prerequisite: EE 301. Static electric and magnetic field theory, time-varying electromagnetic fields, and application of Maxwell's equation.

EE 353—ELECTROMAGNETIC FIELDS 2. 3 credits

Prerequisite: EE 352. Maxwell's equations, wave equations, and skin effect. Propagation and reflection of waves. Antennas. Guided waves.

EE 361—INTRODUCTION TO COMPUTER SYSTEMS. 3 credits

Prerequisite: ISE 350. Physical characteristics of analog, digital, and hybrid computers; programming systems; elementary numerical methods; simulation techniques for engineering systems.

EE 381—ELEMENTS OF ELECTRIC ENERGY ENGINEERING 1. 3 credits

Prerequisite: EE 332. Rotating energy converters and transformers. Theory and design considerations. Simple system applications.

EE 382—ELEMENTS OF ELECTRIC ENERGY ENGINEERING 2. 3 credits

Prerequisite: EE 381. Static energy converters. Elements of bulk energy system operation under steady-state conditions.

EE 420—ELECTRICAL ENGINEERING LABORATORY 4. 1 credit

Prerequisites: EE 340, EE 322, EE 333. The fourth course in a sequence which deals with electric instrumentation, devices, and systems.

EE 430—ELECTRICAL ENGINEERING LABORATORY 5. 1 credit

Prerequisites: EE 340, EE 352, EE 381. The fifth course in a sequence which deals with electric instrumentation, devices, and systems.

EE 440—ELECTRICAL ENGINEERING LABORATORY 6. 1 credit
Prerequisites: EE 420, EE 441. The sixth course in a sequence which deals with instrumentation, devices, and systems.

EE 441—COMMUNICATION SYSTEMS AND COMPONENTS. 4 credits
Prerequisites: EE 322 and EE 333. Radio, television, radar and telemetry systems.

EE 442—MODULATION AND COMMUNICATION SYSTEMS. 3 credits
Prerequisite: EE 441. Amplitude, frequency, and pulse modulated systems.

EE 443—NOISE IN DEVICES AND COMMUNICATION SYSTEMS. 3 credits
Prerequisite: EE 441. System and Fourier analysis; sampling theory; origin, characterization, and measurement of random noise.

EE 450—ELECTRICAL ENGINEERING LABORATORY 7. 1 credit
Prerequisite: EE 440. The seventh course in a sequence which deals with electric instrumentation, devices, and systems.

EE 452—TRANSMISSION LINES AND MICROWAVE CIRCUITS. 3 credits
Prerequisite: EE 353. Field and distributed circuit theories of transmission lines and waveguiding systems. N-port and 2-port junctions. Scattering and transmission matrix formulations, the Smith Chart. Impedance transformation and matching. Passive microwave devices including terminations, attenuators, phase shifters, hybrid junctions, isolators and circulators. Microwave resonators.

EE 474—LINEAR CONTROL SYSTEMS. 3 credits
Prerequisite: EE 333. Analysis and design of linear feedback control systems by root locus and frequency response methods. Controllability and observability. State variable and classical analysis of multidimensional linear systems.

EE 475—DIGITAL CONTROL OF MACHINES AND SYSTEMS. 5 credits
Prerequisites: EE 382, EE 474. Application of digital techniques to basic control and data reduction problems. Input-output machinery and analog-digital, digital-analog conversion systems. Application of numerical techniques to control and data reduction. Laboratory.

EE 481—CONTROL OF ENERGY CONVERTER SYSTEMS 1. 5 credits
Prerequisite: EE 382. Dynamic equations for d-c machines; transient and frequency response of closed-cycle systems; stability considerations; examples of feed-back systems using d-c machines; metadynes and amplidynes. The metadyne as a generalized machine. Laboratory.

EE 482—CONTROL OF ENERGY CONVERTER SYSTEMS 2. 5 credits
Prerequisite: EE 481. The synchronous machine; transformation to direct and quadrature-axis variables. Steady-state analysis; transient analysis; voltage regulation studies; block diagram representation of systems; synchronous machine dynamics. Polyphase induction machines, two-phase control motors; self-synchronous systems, synchro control transformers. Laboratory.

EE 483—ELECTRIC ENERGY SYSTEMS 1. 3 credits
Prerequisite: EE 382. Operation of power systems under static or quasi-static conditions. Economic and geographical considerations.

EE 484—ELECTRIC ENERGY DISTRIBUTION SYSTEMS. 3 credits
Prerequisites: EE 382. Study of power distribution systems; protection, instrumentation, and metering.

EE 485—ELECTRIC ENERGY SYSTEMS 2. 3 credits
Prerequisite: EE 483. Electric energy transmission. Steady-state load flow analysis and control. Optimum dispatch considerations.

EE 491—CREATIVE PROBLEM SOLVING. 3 credits

Development of a problem solving approach for complex electrical engineering problems with emphasis on creative techniques and the writing of meaningful engineering reports.

EE 493—ELECTRICAL DESIGN AND EXPERIMENTAL PROCEDURE. 1 to 6 credits

Prerequisite: Approval of instructor. Special projects are studied and reports prepared thereon.

EE 494—ELECTRICAL DESIGN AND EXPERIMENTAL PROCEDURE. 1 to 6 credits

Second half of the course EE 493-494.

EE 498—SPECIAL PROBLEMS IN ELECTRICAL ENGINEERING. 1 to 6 credits

Prerequisite: Recommendation of Department Chairman. Selected problems or projects in the student's major field of engineering study. May be repeated to the maximum of 12 credits.

EE 499—PRACTICAL WORK IN ELECTRICAL ENGINEERING. 1 to 5 credits

Prerequisite: 4 EG classification: one term industrial employment, including extra work according to a pre-approved outline. Practical engineering work under industrial supervision, as set forth in the College of Engineering Regulations.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

EE 510—GEOMETRIC OPTICS FOR ENGINEERS. 3 credits*

The concept of light rays in determining image formation by lenses and optical instruments; aberration theory; optical instruments.

EE 522—TRANSISTOR ELECTRONICS. 3 credits*

Pre or corequisite: Undergraduate course in electronics or consent of the instructor. The electrical characteristics and circuit application of transistors.

EE 523—TRANSISTOR ELECTRONICS LABORATORY. 1 credit*

The laboratory for the corequisite course EE 522, Transistor Electronics.

EE 524—PULSE CIRCUITS LABORATORY. 1 credit*

The laboratory for the course EE 525, Pulse Circuits. Required of all students enrolled in EE 525, except at GENESYS centers where facilities are unavailable.

EE 525—PULSE CIRCUITS. 3 credits*

Design of nonlinear wave shaping circuits. Counting and gating circuits.

EE 526—APPLICATIONS OF PULSE CIRCUITS. 3 credits*

Prerequisite: EE 525. The application of pulse and logic circuits in system design. Two hour lecture and three hour laboratory.

EE 527—INTEGRATED CIRCUITS. 4 credits*

Theory and fabrication of integrated circuits and devices. Laboratory.

EE 528—PHYSICAL ELECTRONICS FOR ENGINEERS 1. 4 credits*

Prerequisite: EE 522. Engineering applications of phenomena such as piezoelectric effect, photoconductivity, superconductivity, electron emission, etc., to electronic devices. Laboratory.

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*Available for graduate major credit.

EE 529—PHYSICAL ELECTRONICS FOR ENGINEERS 2. 4 credits*
Prerequisite: EE 528. Continuation of EE 528. Laboratory.

EE 551—ANTENNA SYSTEMS. 3 credits*
Prerequisite: Undergraduate course in fields and waves. Electromagnetic field theory and its application to antenna design. Elemental antennas. Antenna systems. Horns, paraboloid, slot, electromagnetic lens antennas.

EE 555—MICROWAVE LABORATORY. 1 credit*
The laboratory for the corequisite course EE 556, Microwave Techniques.

EE 556—MICROWAVE TECHNIQUES. 4 credits*
Prerequisite: Undergraduate required sequence in electronics. Waveguides and resonant cavities. Methods of generating, transmitting and receiving microwaves.

EE 558—APPLICATIONS OF MAGNETISM. 3 credits*
Pre or corequisite: EE 451. Properties and processes in magnetic materials are introduced through examples such as inductors, pulse transformers, memory elements, microwave components, domain devices.

EE 561—DIGITAL COMPUTER PRINCIPLES 1. 3 credits*
Switching algebra and its application to the design of circuits.

EE 562—DIGITAL COMPUTER PRINCIPLES 2. 3 credits*
Prerequisite: EE 561. Digital computer components, organizations, and operation.

EE 563—DIGITAL COMPUTER PRINCIPLES 3. 4 credits*
Prerequisite: EE 561. Program coding techniques and algorithms.

EE 570—CONTROL SYSTEM THEORY AND PRACTICE. 3 credits*
Prerequisite: EE 474. Nonlinear control systems, Liapunov's Direct Method, and describing functions. Signal modulated systems. Static and dynamic optimization. Use of dynamic programming and Pontryagin's Maximum Principle in control.

EE 571—SYNTHESIS OF LINEAR CONTROLS. 3 credits*
Prerequisite: EE 474. Design of continuous and sampled data control systems with frequency domain and root locus methods. Analytic design methods. Synthesis of controllers for discrete and continuous systems and stochastic input.

EE 581—ELECTRIC ENERGY SYSTEM INSTRUMENTATION. 3 credits*
Instrumentation and equipment for control and protection of electric power system components. Carrier and other types of communication systems and their applications to the electric power industry.

EE 591—SPECIAL TOPICS IN ELECTRICAL ENGINEERING 1. 1 to 4 credits*
Maximum 12 credits*
Prerequisite: Graduate standing or permission of instructor for seniors. Laboratory, lectures, or conferences covering specially selected topics in electrical engineering.

EE 592—SPECIAL TOPICS IN ELECTRICAL ENGINEERING 2. 1 to 4 credits*
Maximum 12 credits*
The second half of the course EE 591-592.

* Available for graduate major credit.

GRADUATE COURSES

EE 600—ELEMENTS OF LINEAR SYSTEMS. 3 credits
EE 601—ADVANCED SYSTEM THEORY 1. 3 credits
EE 602—ADVANCED SYSTEM THEORY 2. 3 credits
EE 611—PHYSICAL OPTICS FOR ENGINEERS 1. 3 credits
EE 612—PHYSICAL OPTICS FOR ENGINEERS 2. 3 credits

EE 613–LASER TECHNOLOGY. 3 credits
EE 614–ELECTRO-OPTICS. 3 credits
EE 621–SEMICONDUCTOR JUNCTION DEVICES. 3 credits
EE 622–ELECTRONIC CIRCUITS 1. 3 credits
EE 623–ELECTRONIC CIRCUITS 2. 3 credits
EE 624–ELECTRONIC CIRCUITS 3. 3 credits
EE 625–MODELS AND APPLICATIONS OF SOLID-STATE DEVICES 1. 3 credits
EE 626–MODELS AND APPLICATIONS OF SOLID-STATE DEVICES 2. 3 credits
EE 628–FLUCTUATION PHENOMENA 1. 3 credits
EE 629–FLUCTUATION PHENOMENA 2. 3 credits
EE 630–ADVANCED CIRCUIT ANALYSIS. 3 credits
EE 631–GENERALIZED NETWORK THEORY. 3 credits
EE 632–NONLINEAR CIRCUITS. 3 credits
EE 634–INTRODUCTION TO NETWORK SYNTHESIS. 3 credits
EE 635–MODERN FILTER SYNTHESIS. 3 credits
EE 636–TRANSFER FUNCTION SYNTHESIS. 3 credits
EE 640–NOISE IN LINEAR SYSTEMS. 3 credits
EE 641–THEORY OF COMMUNICATION 1. 3 credits
EE 642–THEORY OF COMMUNICATION 2. 3 credits
EE 643–SIGNAL REPRESENTATION. 3 credits
EE 644–SIGNAL DESIGN. 3 credits
EE 645–STATISTICAL DECISION THEORY. 3 credits
EE 646–SPACE COMMUNICATIONS. 3 credits
EE 647–INFORMATION THEORY. 3 credits
EE 648–ERROR CORRECTING CODES. 3 credits
EE 651–ELECTROMAGNETIC FIELDS AND WAVES. 3 credits
EE 652–ANTENNAS AND WAVE PROPAGATION. 3 credits
EE 653–WAVE PROPAGATION IN PLASMAS. 3 credits
EE 655–ACTIVE MICROWAVE DEVICES. 3 credits
EE 656–WAVEGUIDES AND MICROWAVE NETWORKS. 3 credits
EE 657–COUPLED MODE THEORY. 3 credits
EE 660–FOUNDATIONS OF INFORMATION SCIENCE. 3 credits
EE 661–ANALYSIS AND SYNTHESIS OF COMBINATORIAL SWITCHING CIRCUITS. 3 credits
EE 662–SEQUENTIAL SWITCHING CIRCUIT DESIGN. 3 credits
EE 663–INTRODUCTION TO AUTOMATA THEORY–FINITE-STATE MACHINES. 3 credits
EE 664–PATTERN RECOGNITION THEORY 1. 3 credits
EE 665–ELECTRONIC ANALOG AND HYBRID COMPUTERS 1. 3 credits
EE 666–ELECTRONIC ANALOG AND HYBRID COMPUTERS 2. 3 credits
EE 667–ELECTRONIC ANALOG AND HYBRID COMPUTERS 3. 3 credits
EE 668–DIGITAL SYSTEMS CONTROL. 3 credits
EE 669–PATTERN RECOGNITION THEORY 2. 3 credits
EE 670–MODERN CONTROL THEORY 1. 3 credits
EE 671–MODERN CONTROL THEORY 2. 3 credits
EE 672–MODERN CONTROL THEORY 3. 3 credits
EE 676–INERTIAL GUIDANCE AND CONTROL. 3 credits
EE 679–NONLINEAR CONTROL SYSTEMS. 3 credits
EE 680–ADVANCED ELECTRIC ENERGY SYSTEMS 1. 3 credits
EE 681–ADVANCED ELECTRIC ENERGY SYSTEMS 2. 3 credits
EE 682–ADVANCED ELECTRIC ENERGY SYSTEMS 3. 3 credits
EE 685–ADVANCED ELECTRICAL MACHINERY. 3 credits
EE 687–ADVANCED ELECTRICAL MEASUREMENTS. 4 credits
EE 691–SPECIAL TOPICS IN ELECTRICAL ENGINEERING. 1 to 6 credits Maximum 18 credits
EE 692–SPECIAL TOPICS IN ELECTRICAL ENGINEERING. 1 to 6 credits Maximum 18 credits
EE 695–GRADUATE SEMINAR. 1 credit. Maximum 4 credits
EE 699–MASTER'S RESEARCH. 1 to 15 credits
EE 799–DOCTORAL RESEARCH. 1 to 15 credits

Engineering Graphics

INSTRUCTIONAL STAFF 1969-70

Gaither, R. B., *Chairman;* Neff, T. O., *Section Head;* Jacunski, E. W.; Klement, F. W.; Smith, J. H.; Stockstill, R. E.; Watts, E. H.; Williams, H. B.

EGR 183—ELEMENTARY ENGINEERING GRAPHICS 1. 2 credits
Representation and analysis of systems in orthographic projection. Engineering drawing as a descriptive tool.

EGR 193—ENGINEERING GRAPHICS. 3 credits
Graphical processes in engineering communication, design, and problem-solving. Projects and case studies requiring the use of engineering drawing standards, basic descriptive geometry, and graphical analysis.

EGR 194—DESIGN PROCESSES IN ENGINEERING. 2 credits
Problem-solving and mathematical analysis using computational and graphical tools applied to professional problems.

EGR 421—ENGINEERING GRAPHICAL ANALYSIS. 3 credits
Prerequisites: MS 304, ESM 301, or ESM 304, and departmental graphics requirement. The use of graphics in analytical design, graphical methods in the solution of specialized problems including structural analysis, machine dynamics and synthesis.

Engineering Science and Mechanics

INSTRUCTIONAL STAFF 1969-70

Nevill, G. E., Jr., *Chairman;* Boykin, W. H., Jr.; Burns, J. J., Jr.; Ebcioglu, I. K.; Edson, C. G.; Eisenberg, M. A.; Grinter, L. E.; Hartley, C. S.; Hemp, G. W.; Kurzweg, U. H.; Lindgren, E. R.; Lu, S. Y.; Malvern, L. E.; Sheppard, D. M.; Sierakowski, R. L.

ESM 301—ENGINEERING MECHANICS-STATICS. 4 credits
Prerequisites: PS 215, MS 303. Resultants and equilibrium of force systems. Analysis of structures. Friction; centroids, moments of inertia.

ESM 302—ENGINEERING MECHANICS-DYNAMICS. 4 credits
Prerequisites: ESM 301, MS 304. Dynamics of particles and rigid bodies for rectilinear translation, curvilinear motion, rotation and plane motion. Principles of work and energy, also impulse and momentum.

ESM 303—STRENGTH OF MATERIALS. 4 credits
Prerequisites: ESM 301, MS 304. Stress and strain at a point, stress-strain relations. Systems subject to axial load, torsion, and bending. Design concepts. Deformations of bodies. Instability.

ESM 304—ENGINEERING MECHANICS 1. 5 credits
Prerequisites: PS 215 , MS 303. Statics, kinematics, and kinetics of particles, rigid and deformable bodies. An integrated study of static, dynamic and strength of material concepts. Engineering applications.

ESM 305—ENGINEERING MECHANICS 2. 5 credits
Prerequisites: ESM 304, MS 304. Continuation of ESM 304.

ESM 311—FLUID MECHANICS. 4 credits

Prerequisites: ESM 302 or ESM 304, MS 304. Statics and dynamics of incompressible and compressible fluids. Equations of continuity, energy and momentum with application to viscous and inviscid flows. Dimensional analysis.

ESM 411—LABORATORY PROJECTS. 3 credits

Prerequisites: ESM 303 or ESM 305, ESM 311. Laboratory studies in materials behavior under various environmental conditions.

ESM 421—ENGINEERING SCIENCE 1. 4 credits

Prerequisites: MS 305, PS 217. Techniques for solving problems in mixing, thermodynamics, vibrations, potential theory, heat conduction and wave propagation, including methods of solving ordinary and partial differential equations of engineering and physics. Application of vectors, matrices, complex variables, transform calculus, infinite series and specialized function theory to engineering problems.

ESM 422—ENGINEERING SCIENCE 2. 4 credits

Prerequisite: MS 305, PS 217. See description of ESM 421. May be taken without ESM 421.

ESM 423—ENGINEERING SCIENCE 3. 4 credits

Prerequisites: MS 305, PS 217. See description of ESM 421. May be taken without ESM 421 or ESM 422.

ESM 498—SPECIAL PROBLEMS IN ENGINEERING SCIENCE AND MECHANICS. 1-6 credits. May be repeated to a maximum of 12 credits

Prerequisite: Recommendation of Department Chairman. Selected problems or projects in the student's major field of engineering study.

ESM 499—PRACTICAL WORK IN ENGINEERING SCIENCE AND MECHANICS. 1 to 5 credits

Prerequisite: 4EG Classification. One term industrial employment, including extra work according to a pre-approved outline. Practical engineering work under industrial supervision, as set forth in the College of Engineering Regulations.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ESM 501—ENGINEERING DESIGN 1. 4 credits

Prerequisite: Permission of Instructor. Emphasis on overall design and analysis of complex engineering systems. Materials, structural, chemical, control, nuclear, mechanical, electrical, and operational problems; cost analysis.

ESM 502—ENGINEERING DESIGN 2. 4 credits

Prerequisite: ESM 501. Continuation of ESM 501.

ESM 513—INTRODUCTION TO MECHANICS OF CONTINUA. 4 credits

Prerequisites: ESM 303 or ESM 305, ESM 311. Strain, motion, stress, energy and entropy. Constitutive equations of continuous media. Introduction to mechanics of perfect fluids and ideal elastic solids.

ESM 520—FUNDAMENTAL VIBRATION ANALYSIS. 3 credits*

Prerequisites: ESM 305 or ESM 302 and ESM 303. Undamped free and forced vibrations of systems on one degree of freedom, damped vibrations. Vibrations of systems with more than one degree of freedom. Shock and vibration isolation. Instruments for vibration analysis.

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*Available for graduate major credit.

ESM 527—MODERN TECHNIQUES OF STRUCTURAL DYNAMICS 1. 3 credits*

Prerequisites: ESM 305 or ESM 302 and ESM 303, ISE 350, MS 305. Modern methods of elastomechanics applied to systematic analysis and automatic computation. Finite difference techniques, matrix force and displacement methods, finite element modeling. Application of Digital Computers.

ESM 530—INDIVIDUAL STUDY 1. 1 to 9 credits. Maximum 9 credits*

Prerequisites: ESM 302 or ESM 304, MS 304. Individual research projects in solid and fluid mechanics at an advanced undergraduate, and beginning graduate level.

ESM 531—INDIVIDUAL STUDY 2. 1 to 5 credits

Prerequisite: ESM 530. Individual research projects in solid and fluid mechanics at an advanced undergraduate level.

ESM 533—ADVANCED MECHANICS OF SOLIDS AND STRUCTURES. 3 credits*

Prerequisite: ESM 305 or ESM 303. Analysis of stress and strain in deformable bodies. Elastic stress-strain relations. Theories of failure. Shear center. Unsymmetrical bending of beams. Curved beams. Beams on elastic foundations. Torsion of bars. Energy methods.

ESM 536—INTERMEDIATE DYNAMICS. 3 credits*

Prerequisites: ESM 302 or ESM 304, MS 501 or ESM 421. Motion of particles and rigid bodies under constant and variable force fields. Introduction to the equations of Hamilton and Lagrange.

ESM 560—MECHANICAL PROPERTIES OF MATERIALS. 3 credits

Prerequisite: ESM 303 or ESM 305. Introduction to the science of engineering materials. Application of solid state mechanics to mechanical properties of materials including elasticity, plasticity, fracture, creep and relaxation.

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*Available for graduate major credit.

GRADUATE COURSES

ESM 601—INTRODUCTION TO CONTINUUM MECHANICS 1. 3 credits
ESM 602—INTRODUCTION TO CONTINUUM MECHANICS 2. 3 credits
ESM 603—ADVANCED CONTINUUM MECHANICS. 3 credits
ESM 605—PRINCIPLES OF MECHANICS IN BIOMEDICAL ENGINEERING. 3 credits
ESM 621—THEORY OF STRUCTURAL VIBRATIONS 1. 3 credits
ESM 622—THEORY OF STRUCTURAL VIBRATIONS 2. 3 credits
ESM 623—NONLINEAR VIBRATIONS 1. 3 credits
ESM 624—NONLINEAR VIBRATIONS 2. 3 credits
ESM 625—RANDOM VIBRATIONS. 3 credits
ESM 628—MODERN TECHNIQUES OF STRUCTURAL DYNAMICS. 3 credits
ESM 634—INTRODUCTION TO ELASTICITY. 3 credits
ESM 635—INTRODUCTION TO PLATES AND SHELLS. 3 credits
ESM 636—NUMERICAL METHODS OF ENGINEERING ANALYSIS 1. 3 credits
ESM 637—NUMERICAL METHODS OF ENGINEERING ANALYSIS 2. 3 credits
ESM 642—ADVANCED MECHANICAL METALLURGY. 3 credits
ESM 644—ADVANCED DYNAMICS 1. 3 credits
ESM 645—ADVANCED DYNAMICS 2. 3 credits
ESM 646—STABILITY OF DYNAMICAL SYSTEMS. 3 credits
ESM 649—EXPERIMENTAL STRESS ANALYSIS 1. 3 credits
ESM 650—EXPERIMENTAL STRESS ANALYSIS 2. 3 credits
ESM 651—EXPERIMENTAL STRESS ANALYSIS 3. 3 credits

ESM 652–THEORY OF ELASTICITY 1. 3 credits
ESM 653–THEORY OF ELASTICITY 2. 3 credits
ESM 654–THEORY OF ELASTICITY 3. 3 credits
ESM 660–PROPERTIES OF MATERIALS. 3 credits
ESM 667–THEORY OF ELASTIC STABILITY 1. 3 credits
ESM 668–THEORY OF ELASTIC STABILITY 2. 3 credits
ESM 670–INTRODUCTION TO INELASTIC BEHAVIOR OF MATERIALS. 3 credits
ESM 671–THEORY OF INELASTIC CONTINUUM 1. 3 credits
ESM 672–THEORY OF INELASTIC CONTINUUM 2. 3 credits
ESM 673–THEORY OF PLATES AND SHELLS 1. 3 credits
ESM 674–THEORY OF PLATES AND SHELLS 2. 3 credits
ESM 675–THEORY OF PLATES AND SHELLS 3. 3 credits
ESM 676–INERTIAL GUIDANCE AND CONTROL. 3 credits
ESM 677–MATHEMATICAL THEORY OF CONTROL SYSTEMS. 3 credits
ESM 679–NONLINEAR CONTROL SYSTEMS. 3 credits
ESM 690–GRADUATE SEMINAR. 1 credit. Maximum 10 credits
ESM 692–SPECIAL TOPICS IN ENGINEERING MECHANICS. 1 to 9 credits. Maximum 18 credits
ESM 699–MASTER'S RESEARCH. 1 to 15 credits
ESM 799–DOCTORAL RESEARCH. 1 to 15 credits

Environmental Engineering

INSTRUCTIONAL STAFF 1969-70

Furman, T. deS., *Acting Chairman;* Bevis, H. A.; Bolch, W. E., Jr.; Brenzonik, P. L.; Dunavant, B. G.; Fox, J. L.; Gibbs, K. C.; Heaney, J. P.; Huber, W. C.; Mauderli, W.; McCaldin, R. O.; Morgan, W H.; Putnam, H. D.; Pyatt, E. E.; Sholtes, R. S.; Singley, J. E.; Stewart, R. E.; Susag, R. H.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ENE 500–TREATMENT OF WASTEWATER. 4 credits*

Prerequisite: CE 451 and ENE 531 or consent of instructor. An in-depth study of the physical, chemical and biological processes utilized in the treatment of wastewater with special emphasis on cause and effect of physical and biological actions.

ENE 501–INDUSTRIAL WASTE TREATMENT. 3 credits*

Prerequisite: ENE 500, or consent of instructor. Problems associated with the treatment and disposal of manufacturing wastes and their effects on receiving waters. Detailed studies of representative industrial wastes.

ENE 520–ENVIRONMENTAL BIOLOGY 4 credits*

Prerequisite: Consent of instructor. Basic cellular organization and processes related to waste treatment. The role of environmental engineering in maintaining stability of fresh water, marine and terrestrial ecosystems.

ENE 522–ENVIRONMENTAL ENGINEERING. 3 credits*

Prerequisites: CE 450 and CE 451, or consent of instructor. Relation of man to his environment and the principles of engineering methods employed in environmental control in the interest of public health.

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*Available for graduate major credit.

ENE 531—WATER AND WASTEWATER ANALYSIS. 4 credits*

Prerequisites: Three quarters of general chemistry. Principles and applications of chemical analysis in natural and wastewaters. Emphasis on methods and techniques used in routine determination of natural water quality and chemical composition.

ENE 534—THE CHEMISTRY OF WATER TREATMENT. 5 credits*

Prerequisites: CY 213, or CY 204, or consent of instructor. A theoretical and practical study of the examination and treatment of water.

ENE 591—SPECIAL TOPICS IN ENVIRONMENTAL ENGINEERING 1. 1 to 5 credits*

Prerequisite: Consent of instructor. Laboratory, lectures, or conferences covering specially selected topics in environmental engineering. May be repeated with a change of content up to a maximum of 12 credits* including ENE 592.

ENE 592—SPECIAL TOPICS IN ENVIRONMENTAL ENGINEERING 2. 1 to 5 credits*

Second half of ENE 591-592 may be repeated with a change of content up to a maximum of 12 credits* including ENE 591.

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*Available for graduate major credit.

GRADUATE COURSES

ENE 600—ADVANCED WASTE TREATMENT OPERATIONS. 5 credits
ENE 601—ADVANCED ENVIRONMENTAL ENGINEERING DESIGN 1. 5 credits
ENE 602—ADVANCED ENVIRONMENTAL ENGINEERING DESIGN 2. 5 credits
ENE 611—WATER QUALITY MANAGEMENT. 3 credits
ENE 612—WATER MANAGEMENT SEMINAR. 0 to 5 credits Maximum 9 credits
ENE 613—ENVIRONMENTAL RESOURCE SYSTEMS. 4 credits
ENE 614—ADVANCED WATER SUPPLY ENGINEERING. 4 credits
ENE 616—URBAN ENVIRONMENTAL PROBLEMS. 4 credits
ENE 617—ESTUARINE SYSTEMS. 4 credits
ENE 626—AQUATIC MICROBIOLOGY. 4 credits
ENE 627—BIOLOGY OF AQUATIC SYSTEMS. 4 credits
ENE 630—ENVIRONMENTAL CHEMISTRY. 5 credits
ENE 631—ADVANCED WATER ANALYSIS. 4 credits
ENE 636—PRINCIPLES OF WATER CHEMISTRY. 5 credits
ENE 640—RADIOLOGICAL HEALTH. 3 credits
ENE 641—RADIOLOGICAL TECHNIQUES. 5 credits
ENE 642—RADIOACTIVE WASTES. 4 credits
ENE 643—ELECTRONIC PRODUCT RADIATION. 4 credits
ENE 650—OCCUPATIONAL HEALTH. 4 credits
ENE 651—ATMOSPHERIC POLLUTION. 3 credits
ENE 652—ENVIRONMENTAL INSTRUMENTATION. 5 credits
ENE 654—AIR POLLUTION SAMPLING AND ANALYSIS. 4 credits
ENE 655—AIR POLLUTION CONTROL MEASURES. 4 credits
ENE 656—ENVIRONMENTAL METEOROLOGY. 4 credits
ENE 657—ENVIRONMENTAL MICROMETEOROLOGY. 4 credits
ENE 668—MAN AND HIS ENVIRONMENT. 5 credits
ENE 670—GRADUATE ENVIRONMENTAL ENGINEERING SEMINAR. 0 to 2 credits
ENE 671—SPECIAL PROBLEMS IN ENVIRONMENTAL ENGINEERING. 1 to 5 credits. Maximum 12 credits
ENE 680—SOLID WASTES. 3 credits
ENE 681—ANALYSIS OF SOLID WASTES. 5 credits
ENE 682—DESIGN OF SOLID WASTE MANAGEMENT SYSTEMS. 5 credits
ENE 699—MASTER'S RESEARCH. 1 to 15 credits
ENE 799—DOCTORAL RESEARCH. 1 to 15 credits

Industrial and Systems Engineering

INSTRUCTIONAL STAFF 1969-70

Braswell, R. N., *Chairman;* Ariet, M.; Burns, J. F.; Capehart, B. L.; Freeman, J. R.; Heaney, J. P.; Hicks, P. E.; Hollis, R. P. (emeritus); Ireland, R. J.; Khalil, T. M.; Leavenworth, R. S.; Mahoney, J. F.; Marban, J. A.; Martinson, E. P. (emeritus); Miller, D. R.; Muth, E. J.; Nattress, J. A.; Proctor, C. L.; Ratliff, H. D.; Roberts, S. D.; Sivazlian, B. D.; Thomas, M. E.; Turvaville, L. J.; Valisalo, P. E.; Vickers, F. D.; Wilcox, D. B.

ISE 301—INTRODUCTION TO INDUSTRIAL AND SYSTEMS ENGINEERING. 2 credits

Prerequisite: ISE 350 and MS 304. Orientation in industrial and systems engineering. Engineering analysis of problems encountered in modern industry and operational systems.

ISE 330—WORK DESIGN. 3 credits

Prerequisite: ISE 301 and STA 440. The analysis, design and maintenance of work methods. Principles, techniques and procedures for determination and audit of time standards. The study of synthetic time systems and work sampling. Consideration of factors affecting successful implementation and maintenance of a methods engineering program. Laboratory.

ISE 331—JOB EVALUATION. 2 credits

Prerequisite: ISE 330. Analysis of factors affecting job value. Analysis of several systems for determining the relative worth of jobs. Wage plan development, wage surveys, group and individual incentives, and merit rating. Consideration of factors affecting successful implementation and maintenance of a wage administration program.

ISE 350—DIGITAL COMPUTER PROGRAMMING. 2 credits

An introduction to computer programming and the uses for large scale digital computers. Emphasis will be placed on the scientific oriented computer language FORTRAN. Practical problems are solved by each student using the facilities of the Computer Center.

ISE 351—NUMERICAL TECHNIQUES. 2 credits

Prerequisite: ISE 350. Corequisite: MS 305. An introduction to the major techniques for solving problems quantitatively through the use of computers and computer programming languages. Numerical and computer solutions to elementary systems of algebraic equations and ordinary differential equations.

ISE 352—PROCESS CONTROL COMPUTER PROGRAMMING. 1 credit

Basic principles and uses of process control digital computers. Consideration of basic machine language, analog-to-digital and digital-to-analog conversions and process control. Laboratory.

ISE 357—ANALOG COMPUTER PRINCIPLES. 2 credits

Prerequisite: MS 305. Basic principles and uses of analog computer. Consideration of solution of simultaneous algebraic and differential equations as well as elementary simulation techniques. Laboratory.

ISE 401—MATRIX METHODS IN SYSTEMS ENGINEERING. 3 credits

Prerequisite: MS 304. Theory and application of vector spaces and matrices to systems problems. Analysis of linear transformations, simultaneous linear equations, characteristic values, and quadratic forms. Convex sets, n-dimensional geometry, and an introduction to system theory.

ISE 402—TRANSFORM METHODS IN SYSTEMS ENGINEERING. 3 credits

Prerequisite: MS 305. Solution of differential, integral, and difference equations arising in systems engineering and operations research problems using Laplace and Z-transform methods. Operational approaches will be stressed.

ISE 410—INVENTORY SYSTEMS. 3 credits

Prerequisite: ISE 471. Deterministic and probabilistic inventory models for single-item and multi-item systems. Application of dynamic programming. Inventory processes analyzed as stochastic processes. Concept of optimal policy. Constrained inventory sytems. Analysis of distribution systems.

ISE 420—ENGINEERING ECONOMY. 3 credits

Prerequisite: Upper Division classification. Basic principles and applications of economic decision-making between alternatives encountered in engineering systems projects. The analysis will include methodologies of economics, accounting and finance in addition to engineering fundamentals.

ISE 421—ECONOMIC DECISION MODELS. 3 credits

Prerequisite: ISE 420 and ISE 470. Fundamental principles of engineering evaluation and decision making under conditions of uncertainty, risk, and assumed certainty. Included are the Laplace principle, Hurwicz criterion, Savage Regret, and minimum-variance expectation principles. Problems of data collection and analysis are discussed. System production functions are studied.

ISE 432—PRODUCTION AND INVENTORY CONTROL SYSTEMS. 4 credits

Prerequisites: ISE 330, ISE 420, ISE 453, ISE 471. Analysis of production and inventory systems; forecasting, methods of control, material flow systems, scheduling, sequencing, economic lot sizes, single and multi-item deterministic and probabilistic systems.

ISE 433—FACILITIES PLANNING. 3 credits

Prerequisite: ISE 432. Principles, methods, and techniques for analyzing existing and designing proposed plant facilities. The problems involved in and the interrelationships of plant location, product analysis, process design, equipment selection, materials handling, plant arrangement and supplementary services.

ISE 434—PRODUCTION SYSTEMS ANALYSIS AND DESIGN. 3 credits

Prerequisite: ISE 433. Total production systems design. Integration of production subsystems design with concentration on methods of successful implementation. A project and case study oriented course. Laboratory.

ISE 440—HUMAN ENGINEERING. 3 credits

Prerequisite: Upper Division classification. Design, analysis, and evaluation of man-machine systems. Emphasis on interaction of human and non-human components and resultant effect upon total system performance. Discussion of man's physical, mental and psychological characteristics and limitations.

ISE 441—SPECIFICATIONS, CONTRACTS, ETHICS, AND INDUSTRIAL SAFETY. 3 credits

Prerequisite: Upper Division classification. Contracts and contracting procedures and documents; specifications; professional ethics and responsibilities; legal obligations of employers and safety techniques.

ISE 442—ACCIDENT PREVENTION ENGINEERING. 3 credits

Prerequisite: Upper Division classification. Workmen's Compensation provisions. Safety standards, procedures and equipment. Organization and conduct of employee safety training.

ISE 443—SALES ENGINEERING. 3 credits

Prerequisite: Upper Division classification. Techniques applied in selling technical equipment and services that require engineering analysis in their selection, application, and servicing.

ISE 450—SYMBOLIC ASSEMBLY LANGUAGE FOR COMPUTERS. 4 credits

Prerequisite: ISE 350. A study of state-of-the-art computer systems, their software assembly languages and techniques used in systems design. Particular attention will be placed on symbolic assembly languages and the creative process in programming modern stored program computers.

ISE 452—INDUSTRIAL QUALITY CONTROL. 3 credits

Prerequisite: STA 440. Factors affecting product quality are identified and analyzed as they affect variations in and levels of quality performance. The concept of control of quality is introduced. Techniques of control are studied including control charts and statistical sampling for process and lot conformance. The measurement of the significance of control factors is studied.

ISE 453—INDUSTRIAL SYSTEMS SIMULATION. 3 credits

Prerequisite: ISE 350, STA 440. Simulation methodology, languages, and design. Monte Carlo technique, GPSS (General Purpose Simulation System), and Industrial Dynamics applied to the solution of industrial problems.

ISE 470—OPERATIONS RESEARCH 1. 3 credits

Prerequisite: ISE 401. Classical optimization; method of Lagrange multipliers; Kuhn-Tucker conditions; search techniques; convex programming; linear programming; sensitivity analysis; transportation and assignment algorithms.

ISE 471—OPERATIONS RESEARCH 2. 3 credits

Prerequisite: ISE 402, ISE 470. Corequisite: STA 441. Branch and bound methodology; dynamic programming; queuing theory; Markov chains; network analysis.

ISE 480—STOCHASTIC SYSTEMS. 3 credits

Prerequisite: ISE 402 and STA 441. Development and application of probability models in the output analysis of production systems. Applications of probability theory to systems design for reliability, safety, and effectiveness. Formulation of system behavior as a stochastic process.

ISE 481—SYSTEMS DESIGN. 3 credits

Prerequisite: ISE 351 and ISE 357. Corequisite: ISE 471. The design of complex integrated systems using principles of operations research and systems analysis. A design laboratory gives the student experience in modeling and computer simulation of system design configurations and prototype experimentation.

ISE 490—INDUSTRIAL AND SYSTEMS ENGINEERING SEMINAR. 1 credit

Prerequisite: ISE 471. Lectures and discussions on general and specific engineering problems. Individual investigations and research reports on assigned topics. Orientation for an industrial career.

ISE 498—SPECIAL PROBLEMS IN INDUSTRIAL AND SYSTEMS ENGINEERING. 1 to 6 credits

Problems and system studies associated with honors programs representing undergraduate research. Selected advanced topics including new developments and techniques in industrial and systems engineering. May be repeated up to a maximum of 12 credits.

ISE 499—PRACTICAL WORK IN INDUSTRIAL AND SYSTEMS ENGINEERING. 1 to 5 credits

Prerequisite: 4EG classification; one term industrial employment, including extra work according to a pre-approved outline. Practical engineering work under industrial supervision, as set forth in the College of Engineering Regulations.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

The courses numbered in the 500's are designed for advanced undergraduates and beginning graduate students. They may be taken for graduate major credit

when approved by the departmental advisor or by the student's graduate supervisory committee. Students taking these courses for graduate major credit will be required to do additional reading, problems, and reports. Programs for all graduate degrees must include approved course work at the 600 level or above.

ISE 550—COMPUTER PROGRAMMING SYSTEMS 3 credits*

Prerequisite: ISE 350 and ISE 450. A study of typical programming systems including compilers, assembly language, simulators, and symbol and string manipulators.

ISE 551—DIGITAL COMPUTER TECHNIQUES 1. 3 credits*

Prerequisites: ISE 351, ISE 401. Numerical methods for dealing with linear and nonlinear algebraic systems, eigenvalue and eigenvector problems, optimum seeking problems and ordinary differential equations, including error, stability and efficiency analysis.

ISE 552—DIGITAL COMPUTER TECHNIQUES 2. 3 credits*

Prerequisite: ISE 551. Sophisticated techniques for solving integrodifferential equations, boundary and characteristic value problems and partial differential equations will be presented.

ISE 557—ANALOG SIMULATION TECHNIQUES. 3 credits*

Prerequisite: ISE 357. A study of analog computer simulation techniques as applied to chemical processes, mechanical, and electromechanical systems, and random phenomena. Solutions to problems in optimization and economic systems. Methods of testing model accuracy.

ISE 558—HYBRID COMPUTER TECHNIQUES. 3 credits*

Prerequisite: ISE 357, or ISE 481. A study of hybrid computer systems and their use in the solution of problems in systems analysis. Special emphasis will be placed on software. Conversion techniques asociated with digital-to-analog and analog-to-digital.

ISE 562—RELIABILITY ENGINEERING. 3 credits*

Prerequisite: STA 540. Reliability estimation and sampling distributions of estimators. Problems of testing. Nonparametric testing. Reliability Prediction. Stress and accelerated testing. Identification of signification factors.

ISE 570—OPERATIONS ANALYSIS 1. 3 credits

Methods study, work measurement, inventory control, production control, materials handling, and plant layout. (Not available for a student with a degree in Industrial Engineering).

ISE 571—OPERATIONS ANALYSIS 2. 3 credits

Sampling plans, quality control, linear programming, dynamic programming, queuing, optimization theory, and engineering economics. (Not available for a student with a degree in Industrial Engineering).

ISE 580—SYSTEMS ANALYSIS 1. 3 credits*

Prerequisite: ISE 402, STA 440. The analysis of linear operations systems from the integrated approach. An introduction to systems science. Techniques of optimization, graph theory, modeling. Decision and control applications.

ISE 581—SYSTEMS ANALYSIS 2. 3 credits*

Prerequisite: ISE 402, ISE 550, STA 440. The analysis of discrete operations systems. Computer applications in the solution of generalized system problems. Discrete mathematical methods for systems analysis.

*Available for graduate major credit.

GRADUATE COURSES

ISE 601—CLASSICAL OPTIMIZATION THEORY. 3 credits
ISE 602—DYNAMIC PROGRAMMING. 3 credits

ISE 603—DYNAMIC OPTIMIZATION THEORY. 3 credits
ISE 604—LINEAR PROGRAMMING. 3 credits
ISE 605—ADVANCED TOPICS IN LINEAR PROGRAMMING. 3 credits
ISE 606—NONLINEAR PROGRAMMING. 3 credits
ISE 610—MATHEMATICAL THEORY OF INVENTORY. 3 credits
ISE 611—INDUSTRIAL DYNAMICS 1. 3 credits
ISE 612—INDUSTRIAL DYNAMICS 2. 3 credits
ISE 620—GAMES AND GAMING. 3 credits
ISE 621—ADVANCED ENGINEERING ECONOMY. 3 credits
ISE 622—DECISION THEORY. 3 credits
ISE 630—ADVANCED PRODUCTION CONTROL. 3 credits
ISE 631—WORK MEASUREMENT THEORY. 3 credits
ISE 632—FACILITIES SYSTEMS DESIGN. 3 credits
ISE 635—HEALTH SYSTEMS ANALYSIS 1. 4 credits
ISE 636—HEALTH SYSTEMS ANALYSIS 2. 4 credits
ISE 640—HUMAN FACTORS ENGINEERING. 3 credits
ISE 641—BEHAVIOR SYSTEMS ENGINEERING. 3 credits
ISE 642—MAN-MACHINE SYSTEMS DESIGN. 3 credits
ISE 650—THEORY OF PROGRAMMING. 3 credits
ISE 651—DIGITAL SIMULATION TECHNIQUES. 3 credits
ISE 652—DYNAMIC MODELING AND SIMULATION. 3 credits
ISE 653—INFORMATION SYSTEMS. 3 credits
ISE 654—TIME SHARING SYSTEMS DESIGN. 3 credits
ISE 655—SOFTWARE SYSTEMS DESIGN. 3 credits
ISE 657—ANALOG COMPUTER TECHNIQUES. 3 credits
ISE 658—ANALOG-HYBRID SYSTEMS. 3 credits
ISE 659—ADVANCED HYBRID COMPUTER TECHNIQUES. 3 credits
ISE 660—STATISTICAL QUALITY CONTROL. 3 credits
ISE 661—STATISTICAL FORECASTING MODELS. 3 credits
ISE 662—RELIABILITY THEORY. 3 credits
ISE 670—MATHEMATICAL METHODS OF OPERATIONS RESEARCH 1. 3 credits
ISE 671—MATHEMATICAL METHODS OF OPERATIONS RESEARCH 2. 3 credits
ISE 680—QUEUEING THEORY. 3 credits
ISE 681—STOCHASTIC SERVICE SYSTEMS. 3 credits
ISE 682—SYSTEMS ANALYSIS AND DESIGN 1. 3 credits
ISE 683—SYSTEMS ANALYSIS AND DESIGN 2. 3 credits
ISE 690—GRADUATE SEMINAR. 0 or 1 credit
ISE 691—METHODS OF EXPERIMENTAL RESEARCH. 3 credits
ISE 696—SPECIAL PROBLEMS. 1 to 9 credits. Maximum 18 credits
ISE 699—MASTER'S RESEARCH. 1 to 15 credits
ISE 797—SPECIAL PROBLEMS. 1 to 9 credits. Maximum 18 credits
ISE 799—DOCTORAL RESEARCH. 1 to 15 credits

Mechanical Engineering

INSTRUCTIONAL STAFF 1969-70

Gaither, R. B., *Chairman;* Bourke, N. (Emeritus); Farber, E. A.; Flanigan, F. M.; Freeman, W. L.; Gater, R. A.; Gilbert, J. S.; Hsieh, C. K.; Ingman, H. M.; Irey, R. K.; Mahig, J.; Morrison, C. A.; Oliver, C. C.; Patterson, E. P.; Pennington, C. W.; Piotrowski, G.; Prescott, F. L. (Emeritus); Reed, J. C.; Roan, V. P., Jr.; Samuel, J. A.; Schwartz, F. L.; Smith, H. B.; Smith, W. O. (Emeritus); Tesar, D.; Vance, J. M.

ME 320—INSTRUMENTATION AND MEASUREMENTS LABORATORY. 2 credits

Prerequisite: PS 227. Use of precision instruments and measurement standards in mechanical engineering. Introduction to analog computation.

ME 360—THERMODYNAMICS 1. 5 credits
Prerequisites: MS 304, PS 217, CY 213. First and second laws of thermodynamics, microscopic and macroscopic procedures for the calculation of thermodynamic properties, application to example systems.

ME 361—THERMODYNAMICS 2. 4 credits
Prerequisite: ME 360. Microscopic analysis of transport processes, combustion, thermodynamic cycles, and irreversible thermodynamics.

ME 362—THERMODYNAMICS LABORATORY. 1 credit
Prerequisite: ME 360. Corequisite: ME 361. Preparation of engineering reports, experimental verification of thermodynamic principles.

ME 380—MECHANISMS AND KINEMATICS. 4 credits
Prerequisite: ESM 304. A study of the mechanisms used in machinery and the analysis of the motion obtained.

ME 381—MACHINE DYNAMICS. 4 credits
Prerequisite: ME 380. Corequisite: ESM 305. Principles of dynamics in the design of machinery.

ME 382—MANUFACTURING PROCESSES. 4 credits
Prerequisites: ESM 305, MTL 300. Machinery, materials and processes used in manufacturing.

ME 401—PROFESSIONAL ORIENTATION. 1 credit
Prerequisite: Senior Engineering Student. Principles of mechanical engineering practice, professional standards and ethics.

ME 402—MECHANICAL ENGINEERING SEMINAR. 1 credit
Prerequisite: Senior Engineering Student. Presentation of papers on current developments in mechanical engineering.

ME 430—HEAT AND MASS TRANSFER 1. 3 credits
Prerequisites: MS 305, ME 360. One-two-three dimensional steady and unsteady state conduction; radiation; fundamentals of free and forced convection; phase change concepts.

ME 431—HEAT AND MASS TRANSFER 2. 3 credits
Prerequisites: ME 430, ESM 311. Continuation of ME 430.
Lecture plus laboratory to illustrate heat and mass transfer phenomena.

ME 445—MECHANICAL ENGINEERING ANALYSIS. 3 credits
Prerequisite: Senior Engineering Student. Application of mathematical solutions to physical engineering situations.

ME 450—FLUID DYNAMICS. 3 credits
Prerequisites: ESM 311, ME 360. Thermodynamics and mechanics of fluid flow systems, compressible and incompressible flow systems.

ME 460—AIRCRAFT PROPULSION. 3 credits
Prerequisite: ME 360. Physical basis of propulsion, gas turbines and ramjet fundamentals. Introduction to compressor and turbine design. Propulsion performance. Unconventional means of propulsion in space.

ME 461—MECHANICAL PROPULSION SYSTEMS. 3 credits
Prerequisite: ME 360. Gas and liquid fuels, internal combustion engines. Automotive, aircraft, and Diesel power plants.

ME 462—MECHANICAL PROPULSION SYSTEMS LABORATORY. 1 credit
Corequisite: ME 461. Testing of lubricants, gasoline, automobile engines, aircraft engines, and high and low speed Diesel engines.

ME 463—HEAT POWER ENGINEERING. 3 credits

Prerequisite: ME 360. Steam and Diesel engine power plants and their auxiliary equipment.

ME 464—HEAT POWER ENGINEERING LABORATORY. 1 credit

Corequisite: ME 463. Analysis of fuels, heating value, flue gas analysis, and the testing of boilers, turbines, engines, and steam plant auxiliary apparatus.

ME 465—REFRIGERATION AND AIR CONDITIONING. 3 credits

Prerequisite: ME 360. Refrigerating and air conditioning apparatus and their applications to the industrial, commercial and residential fields.

ME 466—REFRIGERATION AND AIR CONDITIONING LABORATORY. 1 credit

Corequisite: ME 465. Performance tests on air conditioning and refrigeration equipment. AC system design.

ME 467—ENERGY CONVERSION. 3 credits

Prerequisite: ME 361. Thermomechanical and thermoelectric energy conversion. Conventional and unconventional techniques and analysis for energy systems interactions.

ME 468—MECHANICAL CONSULTING PRACTICE. 3 credits

Prerequisite: Senior Standing. Synthesis and analysis of mechanical engineering systems, planning and execution of engineering contracts, supervision of construction and tests.

ME 469—HEATING AND AIR CONDITIONING. 3 credits

Prerequisite: ME 465. Heating and air conditioning systems. Equipment selection, system arrangement and duct design.

ME 480—MECHANICAL VIBRATIONS. 4 credits

Prerequisite: ME 381. The single degree of freedom systems, multiple degree of freedom systems. Application to mechanical systems with problems employing computer techniques.

ME 482—MACHINE ANALYSIS AND DESIGN 1. 3 credits

Prerequisite: ESM 305. Corequisite: ME 381, or permission of instructor for non-Me students. Stress analysis of machine elements, design procedure, design of machine elements.

ME 483—MACHINE ANALYSIS AND DESIGN 2. 3 credits

Prerequisite: ME 482. Advanced problems in design, and the design of a complete machine.

ME 484—MACHINE ANALYSIS AND DESIGN 3. 3 credits

Prerequisite: ME 483. Machine systems design.

ME 498—SPECIAL PROBLEMS IN MECHANICAL ENGINEERING. 1 to 5 credits

Prerequisite: Recommendation of Department Chairman. Selected problems or projects in the student's major field of engineering study. May be repeated with a change of content up to a maximum of 12 credits.

ME 499—PRACTICAL WORK IN MECHANICAL ENGINEERING. 1 to 5 credits

Prerequisite: 4EG Classification; one term industrial employment, including extra work according to a preapproved outline. Practical engineering work under industrial supervision, as set forth in the College of Engineering Regulations.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ME 520—CONTROL SYSTEM THEORY. 3 credits*

Prerequisite: MS 305. Physical and mathematical synthesis of linear control systems, system analysis techniques.

ME 560—STATISTICAL THERMODYNAMICS. 3 credits*

Prerequisite: ME 363. Microscopic analysis and molecular approach to equations of state molecular transport theory, Boltzmann and Quantum Statistics; selected problems in statistical thermodynamics analysis.

ME 561—CLASSICAL THERMODYNAMICS. 3 credits*

Thermodynamic analysis of simple compressible substances. Emphasis is placed upon multicomponent multiphase and reacting systems.

ME 581—DESIGN SYNTHESIS IN VIBRATIONS. 3 credits*

Computer aided design is used for determination of vibrational characteristics of simple mechanical systems. Use of energy methods, transfer matrices, frequency response methods, is made to implement design techniques.

ME 591—GAS TURBINES AND JET ENGINES. 3 credits*

Prerequisite: ME 460. Studies on jet, turbo-prop, ram- jet, stationary and automotive gas turbine engines, regenerative and non-regenerative; thrust augmentation and design.

ME 593—MECHANICAL DESIGN 1. 3 credits*

Prerequisite: ME 483. Selected problems in design.

ME 594—MECHANICAL DESIGN 2. 3 credits*

Prerequisite: ME 483. Selected problems in design.

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*Available for graduate major credit.

GRADUATE COURSES

ME 620—INSTRUMENTATION AND MEASUREMENTS LABORATORY. 1 credit
ME 621—FEEDBACK CONTROL SYSTEM DESIGN 1. 3 credits
ME 623—FEEDBACK CONTROL SYSTEM DESIGN 2. 3 credits
ME 624—FEEDBACK CONTROL SYSTEM DESIGN 3. 3 credits
ME 650—SPECIAL TOPICS IN FLUID DYNAMICS. 3 credits
ME 651—SPECIAL TOPICS IN HEAT TRANSFER. 3 credits
ME 652—THERMODYNAMICS OF FLUID FLOW 1. 3 credits
ME 653—THERMODYNAMICS OF FLUID FLOW 2. 3 credits
ME 654—THERMODYNAMICS OF FLUID FLOW 3. 3 credits
ME 655—CONDUCTION HEAT TRANSFER. 3 credits
ME 656—CONVECTIVE HEAT TRANSFER 1. 3 credits
ME 657—RADIATION HEAT TRANSFER. 3 credits
ME 658—CONVECTIVE HEAT TRANSFER 2. 3 credits
ME 659—ADVANCED HEAT TRANSFER. 3 credits
ME 660—ADVANCED STATISTICAL MECHANICS AND KINETIC THEORY. 3 credits
ME 661—ADVANCED THERMODYNAMICS. 3 credits
ME 662—IRREVERSIBLE THERMODYNAMICS. 3 credits
ME 663—ENERGY CONVERSION. 3 credits
ME 664—COMBUSTION 1. 3 credits
ME 665—COMBUSTION 2. 3 credits
ME 666—SOLAR ENERGY UTILIZATION. 3 credits
ME 667—SPECIAL TOPICS IN SOLAR ENERGY. 3 credits. Maximum 9 credits
ME 668—GAS TURBINE DESIGN AND PERFORMANCE. 3 credits

ME 675—ADVANCED AIR CONDITIONING 1. 3 credits
ME 676—ADVANCED AIR CONDITIONING 2. 3 credits
ME 677—ADVANCED REFRIGERATION. 3 credits
ME 681—MECHANICAL VIBRATIONS 1. 3 credits
ME 682—MECHANICAL VIBRATIONS 2. 3 credits
ME 683—DYNAMIC SYNTHESIS OF DIRECT CONTACT MECHANISMS. 3 credits
ME 684—COPLANAR KINEMATIC SYNTHESIS 1. 3 credits
ME 685—COPLANAR KINEMATIC SYNTHESIS 2. 3 credits
ME 686—SPATIAL KINEMATIC SYNTHESIS AND ANALYSIS. 3 credits
ME 689—SIMILITUDE IN MECHANICAL ENGINEERING DESIGN. 3 credits
ME 690—MECHANICAL RESEARCH 1. 1 to 3 credits. Maximum 6 credits
ME 691—MECHANICAL RESEARCH 2. 1 to 3 credits. Maximum 6 credits
ME 692—ADVANCED MECHANICAL LABORATORY 1. 3 credits
ME 693—ADVANCED MECHANICAL LABORATORY 2. 3 credits
ME 695—GRADUATE SEMINAR. 1 credit
Maximum 9 credits
ME 699—MASTER'S RESEARCH. 1 to 15 credits
ME 799—DOCTORAL RESEARCH. 1 to 15 credits

Metallurgical and Materials Engineering

INSTRUCTIONAL STAFF 1969-70

Rhines, F. N., *Chairman;* Baldwin, D. H.; Bates, S. R.; DeHoff, R. T.; Dove, D. B.; Gould, R. W.; Guy, A. G.; Hartley, C. S.; Hench, L. L.; Hren, J. J.; Hummel, R. E.; Kronsbein, J.; Pepinsky, R.; Reed-Hill, R. E.; Rummel, R. A.; Tiffin, W. T.; Verink, E. D., Jr.

MTL 300—MATERIALS 1. 4 credits

Prerequisites: CY 211 or CY 202. Elements of crystallography, stereographic projection, crystal plasticity, properties of aggregates, structure of polymers, binary phase diagrams and properties of solids.

MTL 310—ELECTRICAL PROPERTIES OF MATERIALS. 4 credits

Prerequisite: PS 217. Crystallography, x-ray diffraction, phase diagrams, diffusion, lattice defects, introduction to wave mechanics and its application to the electronic and magnetic theory of metals, semi-conductors, and dielectrics.

MTL 401—MATERIALS 2. 3 credits

Prerequisite: MTL 300. Physical metallurgy of ferrous and non-ferrous metals and their alloys. A correlation of properties, structural and mechanical history, thermal history, and service behavior of the various metals and their alloys.

MTL 402—MATERIALS 3. 3 credits

Prerequisite: MTL 401. Continuation of MTL 401.

MTL 403—MATERIALS 4. 3 credits

Prerequisite: MTL 402. Continuation of MTL 401, 402.

MTL 450—PROCESS METALLURGY 1. 3 credits

Prerequisites: PS 217 and CY 213 or CY 204. Principles of pyrometallurgy, hydrometallurgy and electrometallurgy, with applications to specific ferrous and non-ferrous metals.

MTL 451—PROCESS METALLURGY 2. 3 credits

Prerequisite: MTL 450. Unit operations of process metallurgy including: comminution, classification, flotation, stoichiometry, heat balances, fuels and heat utilization.

MTL 460—INTRODUCTION TO DIFFRACTION THEORY. 3 credits

Prerequisite: MTL 300. Scattering theory of x-rays and electrons, the reciprocal lattice concept and stereographic projection as applied to x-ray diffraction and electron microscopy in Metallurgical and Materials Engineering.

MTL 470—METALLURIGICAL AND MATERIALS ENGINEERING SEMINAR. 1 credit

Prerequisite: Senior Engineering Student. Presentation of papers on current developments in metallurgical and materials engineering.

MTL 480—PROCESSES AND PROPERTIES OF CERAMIC MATERIALS. 4 credits

Prerequisites: PS 217 and MTL 300. Introduction to the electrical, thermal, mechanical, magnetic, and optical behavior of ceramic and glass materials in terms of structure, processing variables, and environmental effects. Laboratory included.

MTL 490—METALLURGY LABORATORY 1. 1 credit

Prerequisite: CY 213 or CY 204 plus upper division classification. Laboratory techniques in physical metallurgy, including: metallography; x-ray crystallography; radiography; spectroscopy; pyrometry; mechanical testing of metals and alloys; mechanical forming; heat treating; and dilatometry.

MTL 491—METALLURGY LABORATORY 2. 1 credit

Prerequisite: MTL 490. Continuation of MTL 490.

MTL 492—METALLURGY LABORATORY 3. 1 credit

Prerequisite: MTL 491. Continuation of MTL 490, 491.

MTL 498—SPECIAL PROBLEMS IN METALLURGICAL AND MATERIALS ENGINEERING. 1 to 6 credits. Maximum of 12 credits

Prerequisite: Recommendation of the Department Chairman. Selected problems or projects in the student's major field of engineering study. May be repeated for credit with change in content.

MTL 499—PRACTICAL WORK IN METALLURGICAL AND MATERIALS ENGINEERING. 1 to 5 credits

Prerequisite: 4EG classification; one term industrial employment, including extra work according to a pre-approved outline. Practical engineering work under industrial supervision, as set forth in the College of Engineering Regulations.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

MTL 510—ELECTRONIC STRUCTURE OF MATTER. 3 credits*

Prerequisite: MTL 310. Unified derivation and mathematical description of properties of solids from Schroedinger's Wave, and Boltzmann's Transport equations presented with emphasis on application by engineers.

MTL 511—ELECTRONIC STRUCTURE AND PROPERTIES OF CRYSTALS 1. 3 credits*

Prerequisite: MTL 510. Continuation of MTL 510. Applications of the principles established in MTL 510 to crystals and transport phenomena, especially heat and electrical conduction, thermoelectric phenomena, the various transverse effects, magnetism, and scattering and trapping processes.

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*Available for graduate major credit.

MTL 512—ELECTRONIC STRUCTURE AND PROPERTIES OF CRYSTALS 2. 3 credits*

Prerequisite: MTL 511. Continuation of MTL 511.

MTL 520—STRUCTURE AND PROPERTIES OF ALLOYS. 3 credits*

Prerequisite: MTL 300. Quantitative metallography, topology of structures, cast structures, diffusion in solids.

MTL 521—SOLID STATE PROCESSES. 3 credits*

Prerequisite: MTL 520. Phase transformations in the solid state, annealing processes, precipitation hardening, martensitic transformations.

MTL 522—SELECTION OF MATERIALS. 3 credits*

Philosophy and practice of engineering selection of materials. Optimization based on function, reliability, processing factors, and economic factors.

MTL 540—MECHANICAL METALLURGY 1. 4 credits*

Corequisite: ESM 305, MTL 520. A study of crystallographic mechanisms of plastic deformation and fracture in metals and alloys. Laboratory included.

MTL 541—MECHANICAL METALLURGY 2. 3 credits*

Prerequisite: MTL 540. Continuation of MTL 540.

MTL 542—METAL FORMING. 4 credits*

Application of theories of elastic and plastic behavior and fracture to metal forming processes. Forging, rolling, extrusion, wire drawing, sheet metal forming. Laboratory included.

MTL 550—CHEMICAL METALLURGY 1. 3 credits*

Prerequisite: ME 360. Principles of thermodynamics applied to slag-metal equilibria, phase transformations, electrochemistry, oxidation, and other metallurgical processes.

MTL 551—CORROSION. 3 credits*

Prerequisite: ME 360 or permission of instructor. Theory and mechanism of corrosion processes, corrosion behavior of engineering materials. Economic solutions to corrosion problems in design and material selection.

MTL 552—CHEMICAL METALLURGY 2. 3 credits*

Prerequisite: MTL 550 or consent of instructor. Continuation of MTL 550.

MTL 560—X-RAY AND ELECTRON METALLOGRAPHY. 4 credits*

Prerequisite: MTL 460. Properties of x-rays, x-ray diffraction theory, crystal orientation, phase identification and other related topics.

MTL 580—PHYSICAL CERAMICS 1. 3 credits*

Prerequisite: MTL 480. Structure of complex ceramic compounds and glasses and influence of processing, atmosphere, temperature, composition, and other variables upon their mechanical, electrical, dielectrical, magnetic, optical, and thermal properties.

MTL 581—PHYSICAL CERAMICS 2. 3 credits*

Prerequisite: MTL 480. Fundamentals of ceramic processing. Chemical bonds, surfaces, clay-water systems, forming energetics, drying and firing kinetics. Diffusion, nucleation, crystal growth, solid-solid, solid-liquid reactions. Microstructure characteristics and process calculations.

MTL 582—PHYSICAL CERAMICS 3. 3 credits*

Prerequisite: MTL 480. Continuation of the series MTL 580, 581.

MTL 590—RESEARCH IN METALLURGY 1. 3 credits

Prerequisite: MTL 403. Short research problems in metallurgy, usually including a final thesis.

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*Available for graduate major credit.

MTL 591—RESEARCH IN METALLURGY 2. 3 credits
Prerequisite: MTL 590. Continuation of MTL 590.

MTL 592—RESEARCH IN METALLURGY 3. 3 credits
Prerequisite: MTL 591. Continuation of MTL 591.

MTL 595—SPECIAL TOPICS IN METALLURGICAL AND MATERIALS ENGINEERING. 3 credits.* Maximum of 6 credits
Prerequisite: Graduate standing or permission of instructor for seniors. Laboratory, lectures, or conferences covering specially selected topics in metallurgical and materials engineering. May be repeated for credit with change of content.

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*Available for graduate major credit.

GRADUATE COURSES

MTL 601—ADVANCED PHASE DIAGRAMS 1. 3 credits
MTL 602—ADVANCED PHASE DIAGRAMS 2. 3 credits
MTL 610—THEORY AND PROPERTIES OF METALS AND ALLOYS 1. 3 credits
MTL 611—THEORY AND PROPERTIES OF METALS AND ALLOYS 2. 3 credits
MTL 612—THEORY AND PROPERTIES OF METALS AND ALLOYS 3. 3 credits
MTL 615—OPTICAL PROPERTIES OF METALS AND ALLOYS. 3 credits
MTL 617—GROWTH, STRUCTURE AND PROPERTIES OF THIN FILMS. 3 credits
MTL 620—ADVANCED PHYSICAL METALLURGY 1. 3 credits
MTL 621—ADVANCED PHYSICAL METALLURGY 2. 3 credits
MTL 622—ADVANCED PHYSICAL METALLURGY 3. 3 credits
MTL 625—DIFFUSION IN SOLIDS. 3 credits
MTL 630—RADIATION DAMAGE IN SOLIDS. 3 credits
MTL 640—ADVANCED MECHANICAL METALLURGY 1. 3 credits
MTL 641—ADVANCED MECHANICAL METALLURGY 2. 3 credits
MTL 642—ADVANCED MECHANICAL METALLURGY 3. 3 credits
MTL 650—METALLURGICAL THERMODYNAMICS. 3 credits
MTL 651—ADVANCED TOPICS IN CORROSION. 3 credits
MTL 660—ADVANCED X-RAY DIFFRACTION 1. 3 credits
MTL 661—ADVANCED X-RAY DIFFRACTION 2. 3 credits
MTL 662—TRANSMISSION ELECTRON MICROSCOPY. 3 credits
MTL 670—SEMINAR IN METALLURGY. 1 credit
MTL 675—SPECIAL TOPICS IN METALLURGICAL ENGINEERING. 1 to 6 credits. Maximum 9 credits
MTL 680—ATOMIC PROCESSES IN CRYSTALLINE CERAMICS. 3 credits
MTL 681—ELECTRONIC PROCESSES IN CRYSTALLINE CERAMICS. 3 credits
MTL 682—STRUCTURE AND PROPERTIES OF GLASSES 3 credits
MTL 699—MASTER'S RESEARCH. 1 to 15 credits
MTL 799—DOCTORAL RESEARCH. 1 to 15 credits

Nuclear Engineering Sciences

INSTRUCTIONAL STAFF 1969-70

Ohanian, M. J., *Chairman;* Bullock, T. E.; Campbell, H. D.; Carroll, E. E.; Dalton, G. R.; Diaz, N. J.; Ellis, W. H.; Englehart, R. W.; Kylstra, C. D.; Mockel, A. J.; Ortabasi, U.; Rhines, F. N.; Schneider, R. T.; Schoessow, G. J.; Uhrig, R. E.; Wethington, J. A., Jr.

NES 401—INTRODUCTION TO NUCLEAR ENGINEERING 1. 4 credits

Corequisite: PS 340. Elementary study of neutron reactions, neutron diffusion, mulitiplication factors for simple nuclear reactors, and time dependent behavior of nuclear systems.

NES 402—INTRODUCTION TO NUCLEAR ENGINEERING 2. 4 credits

Continuation of NES 401. Study of elementary reactor control and instrumentation, radiation effects, nuclear materials, biological effects of radiation, health regulations.

NES 403—INTRODUCTION TO NUCLEAR ENGINEERING 3. 4 credits

Continuation of NES 402. Study of shielding and radiation attenuation. Elementary reactor design based on the pressurized water concept.

NES 404—NUCLEAR ENGINEERING LABORATORY 1. 4 credits

Prerequisite: NES 402. A study of the experimental procedures used in reactor operation, personnel monitoring, radiation detection devices and the statistics of nuclear counting systems.

NES 405—THERMODYNAMICS, HEAT AND MASS TRANSFER IN NUCLEAR SYSTEMS. 4 credits

Prerequisite: MS 303. Thermodynamic aspects of nuclear power, reactor heat generation and removal, and heat transfer and fluid flow.

NES 430—APPLICATIONS OF NUCLEAR RADIATION AND ENERGY 1. 4 credits

A study of the important role played by chemistry in nuclear systems. Chemistry as applied to the fuel cycle and reactor materials, radioisotopes and nuclear explosives engineering.

NES 470—PLASMA ENGINEERING. 4 credits

A basic introduction to plasmas is given with emphasis on engineering applications. The areas to be covered are: thermonuclear fusion, lasers, gas discharges, arcs, MHD power generation, and thermionic energy conversion.

NES 498—SPECIAL PROBLEMS IN NUCLEAR ENGINEERING SCIENCES. 1 to 6 credits

Prerequisite: Recommendation of Department Chairman. Selected problems or projects in the student's major field of engineering study. May be repeated up to maximum of 12 credits.

NES 499—PRACTICAL WORK IN NUCLEAR ENGINEERING SCIENCES. 1 to 5 credits

Prerequisite: 4EG classification; one term industrial employment, including extra work according to a preapproved outline. Practical engineering work under industrial supervision, as set forth in the College of Engineering Regulations.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

NES 530—APPLICATION OF NUCLEAR RADIATION AND ENERGY 2. 4 credits*

Prerequisite: PS 340. The application of radioactive materials and ionizing radiation for measurements in chemistry, physics, engineering, geology, and astrophysics.

NES 540—NUCLEAR RADIATION DETECTION AND INSTRUMENTATION. 4 credits*

Prerequisite: NES 402. Interaction of radiation with matter, radiation detector systems, pulse shaping, amplification, amplitude and time-analyzing circuitry; counting and measuring devices and control systems for nuclear reactors.

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*Available for graduate major credit.

NES 551—NUCLEAR POWER REACTORS 1. 4 credits*

Prerequisite: NES 403 or consent of instructor. Study of the various types of nuclear reactors for power generation, design, construction, materials, heat transfer and cooling systems.

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*Available for graduate major credit.

GRADUATE COURSES

NES 600—NUCLEAR ENGINEERING LABORATORY 2. 4 credits
NES 601—NUCLEAR ENGINEERING LABORATORY 3. 4 credits
NES 608—PRINCIPLES OF NUCLEAR ENGINEERING. 4 credits
NES 610—REACTOR ANALYSIS 1. 3 credits
NES 611—REACTOR ANALYSIS 2. 3 credits
NES 612—ADVANCED REACTOR ANALYSIS. 3 credits
NES 614—NEUTRON TRANSPORT THEORY. 3 credits
NES 616—NUMERICAL METHODS OF REACTOR ANALYSIS. 4 credits
NES 618—FAST REACTOR PHYSICS 1. 3 credits
NES 619—FAST REACTOR PHYSICS 2. 3 credits
NES 632—NUCLEAR PROCESSING AND RADIATIONS 1. 3 credits
NES 633—NUCLEAR PROCESSING AND RADIATIONS 2. 3 credits
NES 635—INTERACTION OF RADIATION WITH MATTER. 3 credits
NES 642—HYBRID COMPUTATIONAL TECHNIQUES IN NUCLEAR ENGINEERING SCIENCES. 3 credits
NES 644—NUCLEAR DATA ACQUISITION AND PROCESSING. 4 credits
NES 651—NUCLEAR POWER REACTORS 2. 4 credits
NES 652—REACTOR TECHNOLOGY 1. 3 credits
NES 653—REACTOR TECHNOLOGY 2. 3 credits
NES 654—SPECIAL NUCLEAR MATERIALS. 3 credits
NES 655—FUNDAMENTAL ASPECTS OF REACTOR SHIELDING. 3 credits
NES 656—REACTOR FUEL CYCLES. 3 credits
NES 658—NUCLEAR ROCKET PROPULSION. 3 credits
NES 660—FUNDAMENTALS OF REACTOR KINETICS. 4 credits
NES 661—ADVANCED REACTOR KINETICS. 3 credits
NES 662—STOCHASTIC PROCESSES IN NUCLEAR SYSTEMS. 3 credits
NES 670—PLASMA SPECTROSCOPY. 4 credits
NES 673—ADVANCED PLASMA THEORY. 4 credits
NES 674—THERMONUCLEAR FUSION. 3 credits
NES 678—DIRECT ENERGY CONVERSION. 4 credits
NES 690—NUCLEAR SEMINAR. 1 credit. Maximum 18 credits
NES 691—SPECIAL PROJECTS IN NUCLEAR ENGINEERING SCIENCES. 1 to 9 credits. Maximum 18 credits
NES 692—SPECIAL TOPICS IN NUCLEAR ENGINEERING SCIENCES. 1 to 9 credits. Maximum 18 credits
NES 694—INDIVIDUAL WORK. 1 to 6 credits. Maximum 18 credits
NES 699—MASTER'S RESEARCH. 1 to 15 credits
NES 799—DOCTORAL RESEARCH. 1 to 15 credits

Engineering Common Courses

EGC 180—ENGINEERING ORIENTATION. 1 credit

The role of the engineer in today's society. His opportunities, his liabilities, and his assets. Grade pass or fail.

EGC 181—ENGINEERING PROBLEMS. 1 credit

Course will be divided according to department interest of student. Each department will present introductory concepts and problems.

EGC 300—MAN, TECHNOLOGY, AND CIVILIZATION. 2 credits

The influence of engineering and technological progress upon cultural, economic and political history; the interrelationship between man's technological and social development.

EGC 301—INTRODUCTION TO PHYSICAL SYSTEMS. 2 credits

Selected engineering problems, set in a professional context and solvable by elementary numerical methods using basic physical laws and common sense. The course provides a relationship between the physical sciences, mathematics and engineering analysis.

EGC 311—INTRODUCTION TO COMPUTING. 4 credits

(Identical to ASC 311) Algorithms, programs and computers. Basic programming using a high level language. Data representation, conversational terminal use and batch processing techniques. Computer solution of problems.

EGC 312—COMPUTERS AND PROGRAMMING. 4 credits

(Identical to ASC 312) Prerequisite: EGC 311. Computer structure and representation of data and instructions. Machine language and macro-assemblers. Compilers and micro-programs. Overlays and program segmentation.

EGC 321—DATA STRUCTURES. 4 credits

(Identical to ASC 321) Prerequisite: EGC 312. Linear and orthogonal lists, strings and arrays. Graphs, directed and undirected, trees and multi-linked structures. Storage allocation systems. Storage collection, search and sorting techniques. Data structures in different languages.

EGC 322—PROGRAMMING LANGUAGES. 4 credits

(Identical to ASC 322) Prerequisite: EGC 321. Formal definitions of languages, including syntax and semantics. Notational systems. Global properties of algorithms, including storage allocation, parallel routines and tasks. String manipulation and special languages.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

EGC 541—TENSOR FIELDS AND FLUID DYNAMICS. 3 credits*

Prerequisites: MS 305 and consent of instructor. Vector and tensor calculus applied to the basic equations of fluid dynamics and transport phenomena.

EGC 550—DIRECT ENERGY CONVERSION ENGINEERING 1. 3 credits*

Prerequisite: senior status in engineering. A new technology resulting from space related activities for generating electrical energy by methods other than classical rotating machines. Engineering fundamentals. Thermoelectrics and thermionics.

EGC 551—DIRECT ENERGY CONVERSION ENGINEERING 2. 3 credits*

Prerequisite: EGC 550. Corequisite: EGC 552. Photovoltaic, fuel cell, magnetohydrodynamic, and exotic direct conversion systems.

EGC 552—DIRECT ENERGY CONVERSION ENGINEERING LABORATORY 1 to 3 credits*

Prerequisites: EGC 550 and instructor permission. Corequisite: EGC 551. A creative project laboratory. Experimental studies of DEC devices and systems. Familarization with a sampling of DEC devices and systems.

EGC 578—NUCLEAR CHEMICAL ENGINEERING. 3 credits*

Prerequisite: CY 455. Review of nuclear physics and radiochemistry. Preparation of nuclear fuels, types of reactors and fuel processing.

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*Available for graduate major credit.

GRADUATE COURSES

EGC 601–THEORY OF FLUID FLOW 1. 3 credits
EGC 602–THEORY OF FLUID FLOW 2. 3 credits
EGC 603–THEORY OF FLUID FLOW 3. 3 credits
EGC 604–BOUNDARY LAYER THEORY. 4 credits
EGC 605–THEORIES OF TURBULENT FLOWS. 3 credits
EGC 611–HIGH SPEED GAS DYNAMICS 1. 3 credits
EGC 612–HIGH SPEED GAS DYNAMICS 2. 3 credits
EGC 613–HIGH SPEED GAS DYNAMICS 3. 3 credits
EGC 621–SURFACE HYDROLOGY. 4 credits
EGC 622–OPERATIONAL HYDROLOGY 1. 4 credits
EGC 623–OPERATIONAL HYDROLOGY 2. 4 credits
EGC 628–WATER SCIENCE SEMINAR. 0 to 5 credits. Maximum 9 credits
EGC 630–ANALYTICAL TECHNIQUES FOR ENGINEERS AND SCIENTISTS 1. 3 credits
EGC 631–ANALYTICAL TECHNIQUES FOR ENGINEERS AND SCIENTISTS 2. 3 credits
EGC 632–ANALYTICAL TECHNIQUES FOR ENGINEERS AND SCIENTISTS 3. 3 credits
EGC 633–PRINCIPLES OF ENGINEERING ANALYSIS 1. 3 credits
EGC 634–PRINCIPLES OF ENGINEERING ANALYSIS 2. 3 credits
EGC 635–PRINCIPLES OF ENGINEERING ANALYSIS 3. 3 credits
EGC 636–PRINCIPLES OF ENGINEERING ANALYSIS 4. 3 credits
EGC 637–PRINCIPLES OF ENGINEERING ANALYSIS 5. 3 credits
EGC 638–APPROXIMATION TECHNIQUES IN ENGINEERING AND SCIENCE 1. 3 credits
EGC 639–APPROXIMATION TECHNIQUES IN ENGINEERING AND SCIENCE 2. 2 credits
EGC 671–INTRODUCTION TO PLASMAS. 3 credits
EGC 672–PLASMA THEORY. 4 credits
EGC 675–PLASMA LABORATORY. 4 credits
EGC 677–GAS LASERS AND THEIR ENGINEERING APPLICATION. 4 credits
EGC 697–SUPERVISED RESEARCH. 1 to 5 credits
EGC 698–SUPERVISED TEACHING. 1 to 5 credits

College of Journalism and Communications

ADVERTISING

BROADCASTING

COMMUNICATION

JOURNALISM

Advertising

INSTRUCTIONAL STAFF 1969-70

Jones, J. P., *Dean;* Boyd, R. S.; Hash, F. F.; Hooper, L. J.; Malickson, D. L.; Rathbun, F. F.; Rice, R. J.; Simmons, R. E.; Terhune, J. L.; Wellborn, C. G.; Willits, R. H.

The offerings in Advertising are designed primarily for training professional advertising men and women in newspaper, magazine, radio and television advertising fields, as well as for careers with advertising and public relations agencies. These courses, however, may be taken for elective credit by students in all Upper Division units of the University. Students who are interested in major work in Advertising, Journalism, Radio, Television and Public Relations are also referred to course offerings under Broadcasting and Journalism and to the requirements of the College of Journalism and Communications.

ADV 305—GRAPHIC ARTS PRODUCTION. 3 credits

Prerequisite: JM 201 or junior standing. Processes and techniques of the graphic arts, with emphasis on periodical production, illustrations, color and use of type.

ADV 306—ELEMENTS OF ADVERTISING. 4 credits

Prerequisite: Junior standing or JM 201. The role of advertising in a free economy, and its place in the media of mass communications. A study of advertising appeals, product and market research, selection of media, testing of advertising effectiveness, organization of the advertising profession.

ADV 402—RADIO-TV ADVERTISING. 5 credits

Prerequisite: JM 201. Study of economics, standards and ethics of radio and television advertising copy. Preparation and presentation of commercial broadcast copy.

ADV 410—ADVERTISING COPY AND LAYOUT. 5 credits

Prerequisites: ADV 305 and ADV 306. Theory and practice of writing copy and preparing layouts for printed advertising; budgeting and scheduling classified and display advertising in periodicals.

ADV 430—INDIVIDUAL PROBLEMS. 1 to 5 credits

Prerequisite: At least 15 hours of Advertising in the Upper Division, and approval of the Dean.

ADV 450—RETAIL ADVERTISING. 4 credits

Prerequisites: ADV 410 and consent of the instructor. A senior course bringing together work of the preceding advertising courses into actual experience and training in the planning, preparation, presentation and selling of retail advertising.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

ADV 507—PUBLIC OPINION THEORY AND ADVERTISING. 5 credits*

Prerequisite: Senior standing. The dynamics of advertising and promoting goods, services, and ideas in terms of modern public opinion concepts, communication theory, semantics and the behavioral sciences.

ADV 512—ADVERTISING CAMPAIGNS. 4 credits*

Prerequisites: Senior standing, ADV 402, ADV 410. An advanced advertising course requiring the student to prepare and produce complete general advertising campaigns. Emphasis is placed on production methods, costs, research and media analysis.

*Available for graduate major credit.

ADV 560—SEMINAR: ETHICS AND PROBLEMS IN ADVERTISING. 4 credits

Prerequisite: Open only to advertising seniors in their graduating quarter, or on approval of instructor. Bringing together the work of the preceding advertising courses, and projecting this knowledge to the solution of problems that will arise in the professional field. Three-day field trip required.

ADV 599—SPECIAL STUDY IN ADVERTISING. 3 credits

Prerequisite: Senior standing in Advertising and permission of the instructor. Variable content, providing opportunity for study in academic areas of Advertising such as Comparative Advertising, Motivational Research in Advertising, Computer Applications in Advertising Research and other fields within the province of the College. (May be repeated once for total of 6 quarter hour credits.)

*Available for graduate major credit.

GRADUATE COURSES

Students interested in graduate work in advertising are referred to course offerings under Communications.

Broadcasting

INSTRUCTIONAL STAFF 1969-70

Jones, J. P., *Dean;* Christiansen, K. A.; Conner, H. H.; Damen, M.; Grooms, D. A.; Jacobs, A. J.; Ogden, M. I.; Small, K. F.; Stirling, B. K.; Wells, E. L.;Whittaker, R. D.

Offerings in Broadcasting are designed primarily for those planning professional careers in radio and television media and in related fields. These courses, however, may be taken for elective credit by students in all Upper Division units of the University. Students interested in major work in Radio, Television, Advertising, Journalism and Public Relations are also referred to course offerings under Advertising and Journalism and to the requirements of the College of Journalism and Communications.

BR 212—INTRODUCTION TO BROADCASTING. 3 credits

An introduction to the cultural, social, legal, business and career aspects of Broadcasting.

BR 318—BROADCAST WRITING. 4 credits

Prerequisite: JM 301 or permission of instructor. Writing for radio and television: Announcements, interviews, music, special events, documentaries, commentaries.

BR 323—BROADCAST PRODUCTION 1. 4 credits

Prerequisite: BR 212. Fundamentals of radio and television production, training in studio and control room procedures and operation.

BR 325—BROADCAST PRODUCTION 2. 4 credits

Prerequisite: BR 323. A continuation of Broadcast Production 1.

BR 424—CINEMATOGRAPHY FOR TV. 4 credits

Prerequisite: BR 212, or permission of instructor. A basic course in handling motion picture equipment and filming assignments for television.

BR 425—THE BROADCAST PROGRAM. 4 credits

Prerequisite: BR 325. An examination of the problems of planning and producing the broadcast program schedule: schedule building, broadcast regulation, broadcast ethics and responsibilities, traffic, and station music library operation.

BR 426—TELEVISION DIRECTING. 4 credits

Prerequisite: BR 325. A study of the creative and artistic phase of the television program; creative camera work, performance of talent, lighting, special effects, and the executive functions of the producer.

BR 430—INDIVIDUAL PROJECTS IN RADIO, TELEVISION AND FILM. 1 to 5 credits

Prerequisite: At least 15 hours of Broadcasting courses in the Upper Division and approval of the Dean. Projects must also have the approval of the Broadcasting faculty. The student and the instructor concerned will choose a problem or project which will give the student experience in his major field.

BR 436—RADIO-TV REPORTING. 4 credits

Prerequisites: JM 301 and BR 424. News writing, editing and processing for the broadcast media.

BR 442—DOCUMENTARY FOR TV. 4 credits

Prerequisite: BR 424. Planning, producing, filming the TV news documentary and the program documentary.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

BR 518—TEACHING THROUGH TELEVISION. 5 credits*

Prerequisite: Senior or Graduate standing. Study of the elements of educational and informational television-radio programs; planning, preparation and production.

BR 525—TELEVISION STAGING AND LIGHTING. 3 credits*

Prerequisite: Senior standing; BR 325 or permission of instructor. Staging and lighting problems, with emphasis on the creative aspects of staging and lighting production.

BR 538—TELEVISION AND FILM WRITING. 3 credits*

Prerequisite: Senior standing; BR 318 or permission of instructor. Forms, techniques and types of writing as they apply to radio, television and film.

BR 560—SEMINAR: ETHICS AND PROBLEMS IN BROADCAST MANAGEMENT. 4 credits

Prerequisite: Open only to Broadcasting seniors in their graduating quarter, or on approval of instructor. Investigation and discussion of advanced problems, ethics and responsibilities in broadcasting. Much attention will be given to governmental policies.

BR 599—SPECIAL STUDY IN BROADCASTING. 3 credits

Prerequisite: Open only to seniors and with permission of instructor. Variable content, providing opportunity for study in academic areas of Broadcasting such as Comparative Communication Systems, Process and Effects of Communications, Communications Theory and other fields within the province of the College. (May be repeated once for total of 6 quarter hour credits.)

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*Available for graduate major credit.

GRADUATE COURSES

For graduate courses in this area see listings under Communications.

Communication

INSTRUCTIONAL STAFF 1969-70

Jones, J. P., *Dean;* Christiansen, K. A.; Edwardson, M. N.; Griggs, H. H.; Hash, F. F.; Hooper, L. J.; Jacobs, A. J.; Webb, J. V.

COM 601—RESEARCH METHODS IN MASS COMMUNICATION. 5 credits
COM 602—ADVERTISING RESEARCH PROBLEMS. 4 credits
COM 603—BROADCAST STATION MANAGEMENT. 3 credits
COM 604—NEWSPAPER PRODUCTION AND MANAGEMENT. 5 credits
COM 605—SEMINAR IN MASS COMMUNICATION AND SOCIETY. 4 credits
COM 606—SEMINAR IN MASS COMMUNICATION THEORY. 4 credits
COM 611—SEMINAR IN HISTORY OF MASS COMMUNICATION. 4 credits
COM 614—PROBLEMS IN PUBLIC RELATIONS. 4 credits
COM 616—SEMINAR IN JOURNALISM TEACHING. 4 credits
COM 619—INTERNATIONAL COMMUNICATION. 5 credits
COM 620—INVESTIGATIVE REPORTING. 5 credits
COM 621—ADVANCED RESEARCH METHODS. 4 credits
COM 623—BROADCAST PROGRAM AND PRODUCTION PROBLEMS. 4 credits
COM 628—RADIO AND TELEVISION IN EDUCATION. 4 credits
COM 630—INDIVIDUAL WORK. 1 to 5 credits. Maximum 10 credits
COM 660—COMMUNICATION COLLOQUIUM. 1 credit. Maximum 4 credits
COM 697—SUPERVISED RESEARCH. 1 to 5 credits
COM 698—SUPERVISED TEACHING. 1 to 5 credits
COM 699—MASTER'S RESEARCH. 1 to 15 credits

Journalism

INSTRUCTIONAL STAFF 1969-70

Jones, J. P., *Dean;* Allen, T. H.; Butler, G. A.; Chance, J. C.; Couch, J. E.; Cunningham, H. W.; Davis, H. G.; Detweiler, J. S.; Flower, B. W.; Griffith, J. L.; Griggs, H. H.; Grooms, D. A.; Lindstrom, J. D.; Lloyd, F. M.; Meade, D. E.; Rathbun, F. F.; Roosenraad, J. A.; Simmons, R. E.; Smith, J. A.; Terhune, J. L.; Webb, J. V.; Wellborn, C. G.; Winkler, W. A.; Yates, E. D.

The offerings in Journalism are designed primarily for training professional journalists in newspaper and magazine reporting, writing, editing, and interpretation; in public relations; and in technical journalism. These courses, however, may be taken for elective credit by students in all Upper Division units of the University. Students who are interested in major work in Journalism, Radio, Television, Advertising and Public Relations also are referred to course offerings under Advertising and Broadcasting and to the requirements of the College of Journalism and Communications.

JM 101—PUBLICATIONS LABORATORY. 1 credit

Prerequisite: Must be regularly writing for a newspaper of general circulation, or a student publication as defined by the Board of Student Publications. Closed to Upper Division majors. News writing and editing for beginners. Critique. May be repeated with change of content up to a maximum of two credits.

JM 118—SURVEY OF COMMUNICATIONS. 3 credits

An introduction to the various media of mass communications with special emphasis on newspapers, radio, and television; their requirements and opportunities; and their responsibilities to the public.

JM 201—WRITING FOR MASS COMMUNICATIONS. 4 credits

Prerequisite: CEH 131-132-133. Prerequisite or corequisite: JM 118 or an educational foundations course, or permission of the instructor. A pre-professional course designed to provide fundamental instruction and practice in writing as a basis for all Upper Division courses in Journalism, Advertising and Broadcasting.

JM 301—ELEMENTARY REPORTING. 5 credits

Prerequisite: JM 201. Corequisite: LY 201. Basic instruction and practice in news gathering and news writing, with special attention being given to style and successful execution of reporting assignments.

JM 325—CONTEMPORARY AFFAIRS. 1 credit

Major news developments and their background; current political, economic, social and scientific developments. Aims to give the student an understanding of world and domestic problems. May be repeated with change of content up to a maximum of three credits.

JM 340—EDITING. 5 credits

Prerequisite: JM 301. Fundamental instruction and practice in essentials of news editing, with special emphasis on editing the weekly and daily newspaper. Included are copyreading, headline writing, makeup, and typography.

JM 342—PHOTO-JOURNALISM. 5 credits

Prerequisite: Junior standing or above in the College of Journalism and Communications. An intermediate course in handling photographic assignments for the printed and broadcast media with special emphasis on editing pictorial material for newspapers and television.

JM 402—ADVANCED REPORTING. 4 credits

Prerequisite: JM 301. Instruction and practice in reporting public affairs, with special emphasis upon responsible news coverage of city, county and state government.

JM 407—HISTORY OF JOURNALISM. 4 credits

Origin, development and potentiality of printed media, with emphasis on the daily and weekly press. Analysis will be made of the evolution of standards, policies, methods and controls.

JM 413—MAGAZINE AND FEATURE WRITING. 4 credits

Prerequisite: JM 301 or permission of instructor. Preparation of articles for publication in newspapers and magazines coordinated with study of magazine-editing problems. Supervised marketing of articles produced in the course.

JM 414—PUBLIC RELATIONS. 4 credits

Prerequisite: JM 201 or permission of instructor. The relationship between journalism media and the public, and the principles, methods and means of influencing the public. Public Relations programs will be prepared.

JM 420—AGRICULTURAL JOURNALISM. 4 credits

Lecture-laboratory. Prerequisite: Junior standing or permission of instructor. Fundamental instruction in the gathering and writing of agricultural news for daily and weekly newspapers, radio, television, and farm periodicals.

JM 425—BUSINESS AND TECHNICAL JOURNALISM. 4 credits

Prerequisite: Senior standing or permission of instructor. Basic instruction covering writing, editing, and production in the area of the trade, business and technical press, with special attention given to style and form for these areas.

JM 430—INDIVIDUAL PROBLEMS IN JOURNALISM. 1 to 5 credits

Prerequisites: At least 15 hours of Journalism in the Upper Division and approval of the Dean. Students and the instructor concerned will choose a problem or project which will give the student actual experience in his major field.

JM 450—APPLIED JOURNALISM. 5 credits

Prerequisites: JM 340, JM 342, and JM 402. A senior course bringing together the work of the preceding news courses into actual experience and newsroom training in the preparation and handling of news copy, pictures and syndicated material.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

JM 501—INTRODUCTION TO MASS COMMUNICATIONS RESEARCH. 4 credits

Prerequisites: Senior standing; consent of instructor. An introduction to the basic principles of mass communication research; emphasis on the research process, application of demographic, survey and experimental research, and the use of commercial research services.

JM 508—PUBLIC OPINION. 5 credits*

Prerequisite: Senior standing. The force of public opinion in modern life; the measurement of public opinion; propaganda methods, their control and analysis.

JM 509—LAW OF THE PRESS AND RADIO-TV. 4 credits*

Prerequisite: Senior standing. Understanding the law which guarantees and protects the privileges and defines the responsibilities of the mass media. Includes problems of constitutional law, libel, privacy and governmental regulations.

JM 514—ADVANCED PUBLIC RELATIONS. 4 credits*

Prerequisites: Senior standing and JM 414. Analysis of modern techniques of disseminating industrial, business, educational and associational news to the appropriate publics. Special publications, broadcasts, special events, planning and budgeting. Emphasis on current professional practice and public relations research.

JM 515—JOURNALISM IN SECONDARY SCHOOLS. 5 credits*

Prerequisite: Senior standing. Corequisite: JM 201. Open only to students seeking certification. This course is designed for persons who plan to teach Journalism in secondary schools, or who act as faculty advisors for school newspapers, magazines or yearbooks.

JM 560—SEMINAR: JOURNALISM ETHICS AND NEWSPAPER MANAGEMENT. 5 credits

Prerequisite: Open only to journalism seniors in their graduating quarter or on approval of instructor. An investigative and discussion approach to advanced problems, policies, responsibilities and ethics in the various areas of journalism.

JM 561—PUBLIC RELATIONS SEMINAR: ETHICS AND PROBLEMS IN PUBLIC RELATIONS. 4 credits

Prerequisite: Open only to seniors in the public relations sequence in their graduating quarter, or on approval of their instructor. Analysis and investigations of trends. principles, policies, and ethics, of the most effective and enlightened current public relations practice.

JM 599—SPECIAL STUDY IN JOURNALISM. 3 credits

Prerequisites: Senior standing in Journalism and permission of the instructor. Variable content, providing opportunity for study in academic areas of Journalism such as the Literature of Journalism, Research Methods in Mass Communications, International Journalism and other fields within the province of the College. (May be repeated once for a total of 6 quarter hours).

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*Available for graduate major credit.

College of Law

The following courses are open to graduate students majoring outside the College of Law.

LW 678—SEMINAR IN LAW AND DEVELOPMENT: LATIN AMERICA. 4 credits

Prerequisite: LW 694.

LW 686—HOSPITAL AND HEALTH LAW SEMINAR. 2 credits

Prerequisite: Permission of instructor.

For description of the courses offered by the College of Law, see the *College of Law Catalog.*

J. Hillis Miller Health Center

College of Health Related Professions

HEALTH AND HOSPITAL ADMINISTRATION

HEALTH RELATED PROFESSIONS

MEDICAL TECHNOLOGY

OCCUPATIONAL THERAPY

PHYSICAL THERAPY

REHABILITATION COUNSELING

College of Medicine

BIOCHEMISTRY

PHARMACOLOGY

For further information see the *College of Medicine catalog.*

College of Nursing

NURSING

College of Pharmacy

PHARMACEUTICAL CHEMISTRY

PHARMACOGNOSY

PHARMACY

Health and Hospital Administration

COLLEGE OF HEALTH RELATED PROFESSIONS

INSTRUCTIONAL STAFF 1969-70

Champion, J. M., *Chairman;* Ash, J. L.; Fellers, J. D.; Freeman, J. R.; Randall, J. M.; Schwartz, M. R.; Sweat, C. J.; Schmidt, R. P.

GRADUATE COURSES

HA 600—PERSPECTIVES IN HEALTH. 4 credits
HA 601—HOSPITAL ORGANIZATION, THE COMMUNITY AND PATIENT CARE. 3 credits
HA 602—FINANCIAL ADMINISTRATION OF HEALTH AND HOSPITAL CARE. 3 credits
HA 610—SEMINAR IN HEALTH AND HOSPITAL ADMINISTRATION. 4 credits
HA 611—SEMINAR IN HEALTH AND HOSPITAL ADMINISTRATION. 2 credits
HA 612—INTRODUCTION TO REHABILITATION FACILITY ADMINISTRATION. 2 credits
HA 630—INDIVIDUAL WORK IN HOSPITAL ADMINISTRATION. 2 credits
HA 640—RESEARCH IN HEALTH AND HOSPITAL ADMINISTRATION. 5 credits
HA 641—PRACTICUM IN HEALTH AND HOSPITAL ADMINISTRATION. 2 to 7 credits. Maximum 7 credits
HA 646—RESIDENCY IN HEALTH AND HOSPITAL ADMINISTRATION. 7 credits

Health Related Professions

COLLEGE OF HEALTH RELATED PROFESSIONS

INSTRUCTIONAL STAFF 1969-70

Mase, D. J., *Dean;* Brown, P. U.; Bzoch, K. R.; Chambers, R.; Finley, M. C.; Fisher, N. P.; Kramer, S.; Laurencelle, P.; Rodeheaver, J. L.; Schmidt, R. P.; Scott, A. D.; Stainsby, W. N.; Warson, S. R.; White, B. C.

The following courses are common to one or more areas of training in the College of Health Related Professions. See Medical Technology (MET), Occupational Therapy (OCT), and Physical Therapy (PHT) for additional professional courses in the respective curricula. HRP 101 is required for medical technology, occupational therapy, and physical therapy. HRP 401 is required for occupational therapy, and physical therapy. HRP 331 is required for medical technology and physical therapy. HRP 433 and 434 are required for physical therapy and occupational therapy.

HRP 101—INTRODUCTION TO HEALTH RELATED PROFESSIONS. 3 credits
Open to all University College students. The current concept of comprehensive care of the ill and disabled. An orientation to the roles of the various health professions.

HRP 331—BASIC ANATOMY AND PHYSIOLOGY. 3 to 5 credits
Prerequisite: ZY 201. Open to students in the College of Health Related Professions and to others by permission of instructor. The structure and physiological function of selected human systems.

HRP 401—PSYCHIATRIC DISORDERS. 4 credits

Prerequisite: OCT 301 or PHT 301. Personality formation with emphasis on periods of tension and conflict. Intensive study of psychoses and psychoneuroses and their psychiatric management. Personality reactions to physical illness.

HRP 417—KINESIOLOGY. 3 to 5 credits

Prerequisites: OCT 431 or PHT 332. Biomechanics of the musculoskeletal system with analysis of human motion and evaluation of function relating to physical disability.

HRP 431—THE NERVOUS SYSTEM. 4 credits

Prerequisite: HRP 331 or PHT 332. Gross structure and internal configuration of the human nervous system and their relationships to function.

HRP 432—GENERAL PATHOLOGY. 4 credits

Prerequisite: HRP 331 or PLY 402; HRP 431. The pathogenesis of human diseases and injuries. The mechanisms whereby etiologic agents affect changes resulting in signs and symptoms. Functional rehabilitative techniques are emphasized.

HRP 433—MEDICAL AND SURGICAL DISORDERS. 3 to 5 credits

Prerequisite or corequisite: HRP 431 and HRP 432. Etiology, pathology, symptomatology and treatment of specific physical disabilities.

HRP 434—MEDICAL AND SURGICAL DISORDERS. 3 to 5 credits

The second half of the course HRP 433-434.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

HRP 550—SEMINAR: BIOLOGICAL BASIS OF CHARACTER STRUCTURE AND SOCIAL BEHAVIOR. 4 credits*

An examination of social behavior among animals from an ethological viewpoint; the evolution of animal societies; the relevance of the ethological approach for the study of human development, biology and behavior.

HRP 551—LABORATORY STUDY OF EMERGENT LANGUAGE BEHAVIOR. 6 credits*

Offered to students in Health Related Professions, Medicine, Special Education and Speech and Psychology with permission of instructor. Theoretical and scientific basis of developmental stages and syndromes of behavior for normal infants and children contrasted to those with abnormal development due to deafness, autism, aphasia, retardation and functional delayed speech development. Laboratory observations and longitudinal case studies.

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*Available for graduate major credit.

GRADUATE COURSES

HRP 600—PERSPECTIVES IN HEALTH. (Identical to HA 600). 4 credits

HRP 620—SEMINAR: THE HEALTH RELATED PROFESSIONS. 4 credits

HRP 630—INDIVIDUAL STUDY IN HEALTH RELATED PROFESSIONS. 3 to 5 credits. Maximum 10 credits

HRP 697—SUPERVISED RESEARCH 1 to 5 credits

HRP 698—SUPERVISED TEACHING 1 to 5 credits

Medical Technology

COLLEGE OF HEALTH RELATED PROFESSIONS

INSTRUCTIONAL STAFF 1969-70

Williams, R., *Chairman;* Crist, E. R.; Delaney, L. R.; Jordan, V. G.; Rodeheaver, J. L.

See also course offerings under Health Related Professions (HRP).

MET 201—INTRODUCTION TO MEDICAL TECHNOLOGY. 2 credits
History, ethics and organizations of medical technology. Types of employment and job opportunities. Open to freshmen and sophomores.

The courses below are open only to those persons who have been accepted into the Medical Technology Curriculum:

MET 302—INTRODUCTION TO LABORATORY PROCEDURES 1. 1 credit
Basic skills in clinical hematologic procedures.

MET 303—FUNDAMENTALS OF MEDICAL TECHNOLOGY 1. 2 credits
Scientific principles and theory in blood banking, clinical microscopy and instrumentation.

MET 304—INTRODUCTION TO LABORATORY PROCEDURES 2. 1 credit
Laboratory procedures emphasizing basic skills in blood banking, clinical microscopy and instrumentation.

MET 305—FUNDAMENTALS OF MEDICAL TECHNOLOGY 2. 2 credits
Scientific principles and theory in clinical chemistry.

MET 306—INTRODUCTION TO LABORATORY PROCEDURES 3. 1 credit
Laboratory procedures emphasizing basic skills in clinical chemistry.

MET 401—CLINICAL LABORATORY PRACTICUM 1. 5 credits
Orientation to laboratory technique during supervised rotation through clinical pathology laboratories.

MET 402—CLINICAL LABORATORY PRACTICUM 2. 5 credits
Practical application of laboratory skills during supervised rotations through clinical pathology laboratories.

MET 403—CLINICAL LABORATORY PRACTICUM 3. 5 credits
Second quarter of the sequence MET 401, 403, 405, 407.

MET 404—CLINICAL LABORATORY PRACTICUM 4. 5 credits
Second quarter of the sequence MET 402, 404, 406, 408.

MET 405—CLINICAL LABORATORY PRACTICUM 5. 5 credits
Third quarter of the sequence MET 401, 403, 405, 407.

MET 406—CLINICAL LABORATORY PRACTICUM 6. 5 credits
Third quarter of the sequence MET 402, 404, 406, 408.

MET 407—CLINICAL LABORATORY PRACTICUM 7. 5 credits
Fourth quarter of the sequence MET 401, 403, 405, 407.

MET 408—CLINICAL LABORATORY PRACTICUM 8. 5 credits
Fourth quarter of the sequence MET 402, 404, 406, 408.

MET 409—PRINCIPLES OF CLINICAL LABORATORY METHODOLOGY 1. 2 credits
The principles and theory of laboratory practice in clinical chemistry and toxicology; hematology; microbiology and parasitology; microscopy and urinalysis; serology; his-

tologic technique; immunology and blood banking; special procedures. Clinical laboratory organization, administration and management are presented.

MET 410—PRINCIPLES OF CLINICAL LABORATORY METHODOLOGY 2. 2 credits

The second quarter of the course sequence MET 409 through 412.

MET 411—PRINCIPLES OF CLINICAL LABORATORY METHODOLOGY 3. 2 credits

The third quarter of the course sequence MET 409 through 412.

MET 412—PRINCIPLES OF CLINICAL LABORATORY METHODOLOGY 4. 2 credits

The fourth quarter of the course sequence MET 409 through 412.

MET 413—SEMINAR IN MEDICAL TECHNOLOGY 1. 1 credit

Selected topics in clinical laboratory methodology; laboratory organization, administration, management; current research, developments, literature, related areas.

MET 414—SEMINAR IN MEDICAL TECHNOLOGY 2. 1 credit

The second quarter of the course sequence MET 413 through 415.

MET 415—SEMINAR IN MEDICAL TECHNOLOGY 3. 1 credit

The third quarter of the course sequence MET 413 through 415.

MET 430—INDIVIDUAL WORK. 3 to 5 credits

Prerequisite: permission of the Department Chairman. A tutorial program designed for students who wish to do investigative study related to medical technology. May be repeated with change of content two times, for a maximum of ten credits.

Occupational Therapy

COLLEGE OF HEALTH RELATED PROFESSIONS

INSTRUCTIONAL STAFF 1969-70

Jantzen, A. C., *Chairman;* Barbati, J. M.; Brown, P. U.; Leppelmeier, G. M.; Maduro, L. A.; Marks, N. C.; Masagatani, G. N.; Nashiro, N. O.; Scott, A. D.; Shoemyen, C. W.

See also course offerings under Health Related Professions (HRP)

OCT 301—INTRODUCTION TO OCCUPATIONAL THERAPY. 4 credits

Prerequisite or corequisite: HRP 101. Occupational therapy objectives and practices as related to advances and trends in health care. Departmental organization and relationships to various governmental and voluntary health agencies.

OCT 302—APPLIED HUMAN DEVELOPMENT. 4 credits

Prerequisite: OCT 301. Application to occupational therapy of principles of human growth and development.

OCT 361—THERAPEUTIC SKILLS. 3 credits

Prerequisite: HRP 101 or consent of instructor. Principles of hand and machine needlecrafts as applied to occupational therapy programs.

OCT 362—THERAPEUTIC SKILLS. 3 credits

Prerequisite: HRP 101 or consent of instructor. Principles of weaving as applied to the occupational therapy program.

OCT 363—THERAPEUTIC SKILLS. 3 credits

Prerequisite. HRP 101 or consent of instructor. Principles of hand printing as applied to occupational therapy programs.

OCT 366—PRACTICUM: COMMUNITY RESOURCES. 4 credits

Prerequisite: OCT 301. Principles of activity analysis, pre-vocational evaluation and the utilization of community resources. Field experiences are required.

OCT 421—PROBLEMS OF PSYCHOSOCIAL DYSFUNCTION—EVALUATION. 4 credits

Prerequisite: OCT 302. Assessment of personality status and social behavior of various diagnostic groups. Work evaluation and work adjustment.

OCT 422—PROBLEMS OF PSYCHOSOCIAL DYSFUNCTION—TREATMENT. 5 credits

Prerequisite: OCT 421, HRP 401. Occupational therapy for psychiatric patients and the psychological adjuncts of physical illnesses. Psychological analysis of activities used in occupational therapy.

OCT 430—INDIVIDUAL WORK. 3 to 5 credits

Prerequisite: Permission of Department Chairman. A tutorial program designed for superior students who wish to do intensive study or investigation of any area of clinical occupational therapy. May be repeated for full credit with change of content.

OCT 431—MUSCULOSKELETAL ANATOMY. 5 credits

Prerequisite: HRP 431. Lectures and intensive laboratory study of the human musculoskeletal system with emphasis on the upper extremities.

OCT 441—PROBLEMS OF PHYSICAL DYSFUNCTION—EVALUATION. 4 credits

Prerequisite: OCT 431. Assessment of the physical status of various disability groups. Methods of evaluation and of reporting results.

OCT 442—PROBLEMS OF PHYSICAL DYSFUNCTION—TREATMENT. 5 credits

Prerequisite: OCT 441. Occupational therapy as applied to neurological, orthopaedic, medical, and surgical conditions. Self-help techniques, adaptation of equipment, work simplification.

OCT 461—PRACTICUM—ROTATING. 3 credits

Corequisites: OCT 421, OCT 441. Designed to parallel academic course work. Rotating clinical experience in medical, pediatric, psychiatric, and surgical services.

OCT 462—PRACTICUM—PSYCHOSOCIAL. 3 credits

Corequisite: OCT 422. Designed to parallel academic course work. Occupational therapy clinical experience with patients with psychiatric and psychosocial disorders.

OCT 463—PRACTICUM—PHYSICAL. 3 credits

Corequisite: OCT 442. Designed to parallel academic course work. Occupational therapy clinical experience with patients with physical disabilities.

OCT 465—INTERNSHIP IN OCCUPATIONAL THERAPY. 5 credits

Prerequisite: Permission of instructor. Supervised clinical experience at recognized hospitals and rehabilitation centers approved by the department. Field work experience in patient treatment.

OCT 480—OCCUPATIONAL THERAPY SEMINAR. 4 credits

Prerequisite: Senior classification. Selected readings and discussions of current developments in the field of occupational therapy. Individual investigations and reports on assigned topics.

Physical Therapy

COLLEGE OF HEALTH RELATED PROFESSIONS

INSTRUCTIONAL STAFF 1969-70

White, B. C., *Chairman;* Baxter, M. L.; Chambers, R.; Finley, M. C.; Fisher, N.P.; Holmes, T. M.; Rutan, F. M.; Wroe, M. C.

See also courses under Health Related Professions (HRP)

PHT 301—INTRODUCTION TO PHYSICAL THERAPY AND COMMUNITY HEALTH CONCEPTS. 3 credits

Prerequisite: HPR 101 and by permission of instructor. Current trends in physical therapy and health care in relation to medical practice. Introduction to patient care.

PHT 311—CLINICAL SCIENCE 1. 5 credits

Corequisites: PHT 301, PHT 332. Basic principles designed to develop students' skill in analyzing problems relating to physical disability. Evaluation and measurement of muscle function, physical performance and posture. Principles and techniques of massage.

PHT 312—CLINICAL SCIENCE 2. 5 credits

Prerequisite: PHT 311. Continuation of PHT 311.

PHT 332—HUMAN ANATOMY. 4 credits

Corequisite: PHT 311. Open to physical therapy students and others with permission of instructor. The macroscopic structures of the human body with emphasis on the neuromuscular and musculoskeletal systems.

PHT 351—PHYSICAL MODALITIES. 5 credits

Prerequisites: HPR 331, PHT 332. Principles and techniques of evaluation and treatment of pathological conditions with low frequency electricity and treatment with thermotherapy procedures.

PHT 361—COMMUNITY HEALTH—NEEDS, SERVICES, STRUCTURE AND IMPLICATIONS. 3 credits

Prerequisite: PHT 312. For physical therapy students and others with permission of instructor. Trends in determining and developing health care in communities. History and structure of health services in U.S. Systems of health care. Roles of the physical therapists.

PHT 411—THERAPEUTIC PROCEDURES 1. 4 credits

Prerequisite: HRP 417. Principles and utilization of equipment and exercise related to the physically disabled.

PHT 412—THERAPEUTIC PROCEDURES 2. 4 credits

Prerequisite: PHT 411. Continuation of PHT 411.

PHT 430—INDIVIDUAL WORK. 2 credits

Prerequisite: PHT 492. A project or research course. Investigative studies in physical therapy. With permission of Chairman of Department may be repeated with change of content up to a maximum of 6 credits.

PHT 433—ANATOMY DISSECTION. 3 credits

Prerequisite: PHT 332. Open to physical therapy students and others with permission of instructor. Intensive laboratory study of human anatomy with emphasis on the neuromuscular and musculoskeletal systems.

PHT 435—SURVEY OF GENERAL SURGICAL PROCEDURES. 3 credits

Prerequisites: HRP 434 and PHT 492. Surgical Treatment of Medical conditions.

PHT 444—SURVEY OF PATIENT PROBLEMS. 3 credits
Prerequisite: PHT 491. Open to physical therapy students and others by permission of instructor. Patient reactions to physical and mental disorders. Emphasis on geriatrics.

PHT 461—SEMINAR. 4 credits
Prerequisite: PHT 361. Corequisite: PHT 444. Community services affecting total patient care. Program planning and implementation. Administration, supervision, consultation and employment practices in physical therapy.

PHT 491—CLINICAL PRACTICUM. 3 credits
Prerequisite: PHT 312. Corequisite: PHT 411. An internship-type experience providing students with the opportunity for supervised work in clinical settings.

PHT 492—CLINICAL PRACTICUM. 3 credits
Prerequisite: PHT 411. Corequisite: PHT 412. Continuation of PHT 491.

PHT 499—INTERNSHIP. 12 credits
Prerequisite: Approval of Department Chairman. Supervised field work experience in facilities approved by the Department. No other courses may be taken during the internship quarter.

Rehabilitation Counseling

COLLEGE OF HEALTH RELATED PROFESSIONS

INSTRUCTIONAL STAFF 1969-70

Thomason, B., *Chairman;* McEver, M. L.; Muthard, J. E.; Sieka, F. L.; Taylor, R. D.

GRADUATE COURSES

RC 600—AN INTRODUCTION TO REHABILITATION COUNSELING. 4 credits
RC 601—PSYCHOLOGICAL AND SOCIOLOGICAL ASPECTS OF REHABILITATION COUNSELING. 5 credits
RC 602—OCCUPATIONAL ANALYSIS AND PLACEMENT ASPECTS OF REHABILITATION COUNSELING. 4 credits
RC 603—MEDICAL AND RELATED ASPECTS OF REHABILITATION COUNSELING. 5 credits
RC 604—REHABILITATION EVALUATION AND COUNSELING WITH THE DISABLED. 5 credits
RC 630—INDIVIDUAL WORK. 3 to 6 credits. Maximum 6 credits
RC 644—RESEARCH IN VOCATIONAL REHABILITATION. 4 credits
RC 645—PRACTICUM IN REHABILITATION COUNSELING. 2 to 6 credits Maximum 6 credits
RC 646—INTERNSHIP IN REHABILITATION COUNSELING. 10 credits
RC 697—SUPERVISED RESEARCH. 1 to 5 credits
RC 698—SUPERVISED TEACHING. 1 to 5 credits

Medicine

For description of the courses offered by the College of Medicine, see the Catalog of the College of Medicine and the *Graduate School Catalog*. Undergraduate courses in biochemistry are listed under Biochemistry.

Biochemistry

COLLEGE OF MEDICINE

INSTRUCTIONAL STAFF 1969-70

Newcomb, T. F., *Acting Chairman;* Allen, C. M.; Chun, P. W.; Fisher, W. R.; Fried, M.; Gurin, S.; O'Brien, T. W.; Rennert, O. M.; Roberts, R. M.; Sander, E. G.; Stein, A. M.

The undergraduate lecture courses, BCH 402 and 403, and the laboratory course, BCH 404, are available to majors in chemistry, agriculture and in the biological sciences. BCH 578 is open by permission of instructor to those students who have satisfactorily completed the required prerequisite work. For those planning graduate work in the Department, the undergraduate major should preferably be in chemistry or biological sciences and should include as many of the following as possible: quantitative, organic and physical chemistry, calculus, physics, genetics, physiology, bacteriology, and German.

BCH 402—BIOCHEMISTRY. 3 credits
Offered 2. Prerequisite: CY 362. The first half of BCH 402-403. Lectures and assigned readings. The chemistry of the substances and reactions characteristic of living organisms.

BCH 403—BIOCHEMISTRY. 3 credits
Offered 3. The second half of BCH 402-403.

BCH 404—BIOCHEMISTRY LABORATORY. 2 credits
Offered 3. Prerequisite: CY 362, BCH 402. Corequisite: BCH 403. Introductory laboratory experiments in biochemistry.

BCH 430—BIOCHEMISTRY SENIOR RESEARCH. 5 credits
Prerequisite: CY 301-302 or equivalent. Senior standing and consent of instructor. Laboratory or literature investigations of biochemical problems of current interest.

GRADUATE COURSES

BCH 578—CHEMISTRY OF BIOLOGICAL MOLECULES. 4 credits*
BCH 601-602-603—BIOCHEMISTRY. 3, 3, 3, credits
BCH 605—LABORATORY METHODS OF BIOCHEMISTRY. 2 credits
BCH 612†—PHYSICAL BIOCHEMISTRY. 4 credits
BCH 613†—INFORMATIONAL MACROMOLECULES. 4 credits
BCH 614†—BIOENERGETICS AND ENZYME MECHANISMS. 4 credits
BCH 615†—RESEARCH METHODS IN BIOCHEMISTRY. 2 to 6 credits
Maximum 12 credits
BCH 616†—BIOCHEMISTRY SEMINAR. 1 credit
BCH 617†—SPECIAL TOPICS IN BIOCHEMISTRY. (May be repeated.)
2 credits. Maximum 6 credits
BCH 699—MASTER'S RESEARCH. 1 to 15 credits
BCH 799—DOCTORAL RESEARCH. 1 to 15 credits
†BCH courses numbered 612 through 617 are identical with MED courses of the same numerical designation.

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* Available for graduate major credit.

Pharmacology

COLLEGE OF MEDICINE

INSTRUCTIONAL STAFF 1969-70

Maren, T. H., *Chairman;* Chiou, C. Y.; Cramer, J. W.; Fox, L. E.; Leibman, K. C.; Muther, T. F.; Oppelt, W. W.; Travis, D. M.; Vogh, B. P.; Voss, E.; Weinstein, I.

PLY 465—PHYSIOLOGY-PHARMACOLOGY I. 5 credits
Prerequisites: PS 211-213, PS 221-223, PHY 361-363.
Corequisite: BCH 402. Principles of pharmacology based on conjoint discussion of normal and abnormal physiologic and biochemical mechanisms. Special emphasis on drug distribution, metabolism, acid-base balance and excretory mechanisms.

PLY 554—PHARMACOLOGY RESEARCH. 3 credits
Prerequisites: PLY 465, B-average, and permission of department chairman. Laboratory or literature investigations of problems of current interest.

PLY 573—PHYSIOLOGY-PHARMACOLOGY II. 5 credits
Prerequisites: BCH 403, PLY 465. Continuation of PLY 465 with special emphasis on nervous, respiratory and cardiovascular function.

PLY 574—PHYSIOLOGY-PHARMACOLOGY III. 5 credits
Prerequisite: PLY 573. Continuation of PLY 465 with special emphasis on digestive and endocrine function, and chemotherapy.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

PLY 522—PRINCIPLES OF ENDOCRINOLOGY. 5 credits*
Prerequisite: A course in Physiology. Physiology and pharmacology of the endocrine glands. Suitable for students in pharmacology, physiology and animal sciences.
*Available for graduate major credit.

GRADUATE COURSES

PLY 607—ADVANCED PHARMACOLOGY. 5 credits
PLY 608—ADVANCED PHARMACOLOGY. 5 credits
PLY 609—ADVANCED PHARMACOLOGY LABORATORY. 1 credit
PLY 610—ADVANCED PHARMACOLOGY LABORATORY. 1 credit

Nursing

COLLEGE OF NURSING

INSTRUCTIONAL STAFF 1969-70

Smith, D. M., *Dean;* Barton, P. H.; Beauvais, J. T.; Bradshaw, C. E.; Chiras, G. L.; Conway, B. L.; Dykes, E. E.; Fields, S. E.; Hayes, C. V.; Hayes, P. A.; Herbert, A.; Hilliard, M. E.; Hutchinson, S. A.; Kelley, L. J.; Kiser, L. K.; Knowles, L. N.; Koehler, E. J.; Kordana, J. H.; Luther, D. C.; Martin, S. D.; McCabe, S.; McKenna, M. E.; McFarlane, J. D.; McMullan, P.; Moody, L. E.; Pafford, V. L.; Patray, J. H.; Patterson, C.; Pearlman, E. R.; Remillet, J. G.; Sachrison, K.; Smith, A. P.; Snider, M. J.; Strozier, V. R.; Talley, N. C.; Taylor, C. D.; Wilson, J. M.

NSG 300—SCIENCE PRINCIPLES APPLIED TO NURSING PRACTICE. 5 credits

Prerequisite or corequisite: NSG 301. Identification of science principles and concepts applicable to the solution of problems in nursing practice.

NSG 301—NURSING SKILLS LABORATORY. 10 credits

Work with selected patients in order to develop the basic manual and interpersonal skills of nursing. Conferences and discussion periods to help students develop principles of nursing care and to evaluate their own skills in meeting the needs of patients.

NSG 310—MEDICAL AND SURGICAL NURSING. 6 credits

Prerequisites: NSG 300, NSG 301, FS 250. The knowledge and understanding essential to the nursing care of patients with general medical and surgical conditions.

NSG 311—MEDICAL AND SURGICAL NURSING LABORATORY. 8 credits

Corequisite: NSG 310. Clinics and conferences as well as practice in the care of selected patients in the hospital and outpatient clinics.

NSG 330—MATERNAL AND INFANT HEALTH NURSING. 4 credits

Prerequisites: NSG 300, NSG 301. Prerequisite or Corequisite: EDF 345. Corequisite: NSG 331. Attitudes, skills and understandings necessary to carry out professional nursing responsibilities in the area of maternal and infant health. Study of reproduction, pregnancy, birth, infancy, and childhood. Community agencies contributing to maternal and infant health nursing.

NSG 331—MATERNAL AND INFANT HEALTH NURSING LABORATORY. 8 credits

Corequisite: NSG 330. Conferences, observations and nursing practice in prenatal and postpartum clinics, labor and delivery rooms, and in the care of mothers and infants including prematures.

NSG 334—EPIDEMIOLOGY OF CHRONIC AND COMMUNICABLE DISEASE. 3 credits

Prerequisite: BCY 300. Provides basic principles in the epidemiological method as it can be applied to chronic and communicable diseases.

NSG 340—PEDIATRIC NURSING. 4 credits

Prerequisites: EDF 345, NSG 300, NSG 301. Corequisite: NSG 341. The knowledges, skills, and attitudes essential to the nursing care of children from infancy through adolescence.

NSG 341—PEDIATRIC NURSING LABORATORY. 8 credits

Prerequisites: EDF 345, NSG 300, NSG 301. Corequisite: NSG 340. Clinics, conferences, and practice in the nursing care of children in the hospital and outpatient clinic.

NSG 430—INDIVIDUAL WORK. 4 credits

Prerequisites: Eleven hours of upper division nursing courses and consent of instructor. Qualified students and instructor may choose particular problem for study. May be repeated once for full credit with change of content.

NSG 440—COMMUNITY NURSING. 4 credits

Prerequisites: NSG 310, NSG 311, NSG 330, NSG 331, NSG 334 and NSG 341. Corequisites: NSG 441 and NSG 443. Study of the principles of public health nursing and the role of the nurse in nursing services in the community.

NSG 441—COMMUNITY NURSING LABORATORY. 7 credits

Corequisites: NSG 440, NSG 443. Observation and practice in public health nursing in an agency providing public health nursing services and/or other clinical facilities.

NSG 443—PUBLIC HEALTH SCIENCE AND ADMINISTRATION. 4 credits
Open to upper division students; a required course for nursing students. To stimulate the university student into responsible leadership in health and health-related issues within the social structure of the United States.

NSG 445—NURSING ASPECTS OF GERONTOLOGY. 4 credits
Prerequisite: NSG 310. A study of the understandings and skills required for effective nursing service to the aged.

NSG 450—PSYCHIATRIC NURSING. 4 credits
Prerequisites: NSG 310 and NSG 311. Corequisite: NSG 451. The knowledge, understanding, skills and attitudes essential to the nursing care of patients with psychiatric disorders. Designed to broaden and deepen understandings already gained in relation to mental health.

NSG 451—PSYCHIATRIC NURSING LABORATORY. 8 credits
Prerequisites: NSG 310 and NSG 311. Corequisite: NSG 450. Conferences, clinics and practice in the care of psychiatric patients.

NSG 461—SENIOR CLERKSHIP. 15 credits
Prerequisite: Courses in clinical area of choice. Nursing practice under supervision in ward and clinic care of patients. Tutorial relationship with nursing staff and faculty in lectures, conferences, teaching rounds.

NSG 490—INTERNSHIP IN NURSING TEAM LEADERSHIP. 12 credits
Prerequisite: B.S. in Nursing degree. A supervised work experience in the role and functions of team leadership. Designed as a sequence of two-three quarters which must include a minimum of 880-1320 work hours.

GRADUATE COURSES

NSG 602—DIMENSIONS OF THE NURSING PROFESSION. 4 credits
NSG 603—SEMINAR IN GENERAL NURSING. 4 credits
NSG 604—ROLES & RELATIONSHIPS IN THE CONTEMPORARY AMERICAN HOSPITAL. 4 credits
NSG 605—HEALTH CARE AND THE LIFE CYCLE OF THE FAMILY. 4 credits
NSG 606—EFFECTIVE PARTICIPATION IN GROUP ACTIVITY. 4 credits
NSG 607—THE CONTEMPORARY AMERICAN HOSPITAL. 4 credits
NSG 608—THE ANALYSIS OF NURSING PROCEDURES. 4 credits
NSG 610—SEMINAR IN MEDICAL SURGICAL NURSING 1. 4 credits
NSG 611—SEMINAR IN MEDICAL SURGICAL NURSING 2. 4 credits
NSG 612—CLINICAL PRACTICE IN MEDICAL SURGICAL NURSING. 4 credits
NSG 613—ADVANCED MEDICAL SURGICAL NURSING. 4 credits
NSG 620—ADVANCED PSYCHIATRIC AND MENTAL HEALTH NURSING. 4 credits
NSG 621—AREA SEMINAR IN CLINICAL NURSING: PSYCHIATRIC NURSING. 4 credits
NSG 622—ADVANCED PSYCHIATRIC NURSING: NURSING INTERVENTION IN MENTAL ILLNESS. 4 credits
NSG 623—CLINICAL PROBLEMS IN PSYCHIATRIC NURSING. 4 credits
NSG 630—INDIVIDUAL STUDY. 1 to 4 credits. Maximum 12 credits
NSG 640—PEDIATRIC NURSING: PROBLEMS OF THE WELL CHILD. 4 credits
NSG 641—SEMINAR IN ADOLESCENT HEALTH CARE. 4 credits
NSG 642—PEDIATRIC NURSING: THE ILL CHILD. 4 credits
NSG 645—SEMINAR IN NURSING CARE OF THE MENTALLY RETARDED CHILD. 4 credits
NSG 650—SEMINAR IN MATERNAL AND INFANT HEALTH. 4 credits
NSG 651—MATERNITY NURSING PRACTICES: PRENATAL PERIOD. 4 credits

NSG 652—MATERNAL AND INFANT HEALTH PRACTICES: HOSPITALIZATION PERIOD. 4 credits
NSG 653—MATERNAL INFANT PRACTICES: COMMUNITY. 4 credits
NSG 660—RESEARCH METHODS IN NURSING. 4 credits
NSG 671—PRACTICUM IN NURSING. 4 to 12 credits
NSG 680—NEW DIMENSIONS IN HEALTH IN THE COMMUNITY. 4 credits
NSG 690—RESIDENCY. 12 credits. Maximum 36 credits
NSG 697—SUPERVISED RESEARCH. 1 to 5 credits
NSG 698—SUPERVISED TEACHING. 1 to 5 credits

Pharmaceutical Chemistry

COLLEGE OF PHARMACY

INSTRUCTIONAL STAFF 1969-70

Gramling, L. G., *Chairman;* Finger, K. F.; Hammer, R. H.; Lauter, W. M.; Rao, K. V.

PCY 443—PHARMACEUTICAL ANALYTICAL PROCEDURES. 4 credits
Prerequisites: Cy 373, CY 331, PHY 301. Concepts and methods of drug analysis with emphasis on titrimetric and optical methods.

PCY 450—PROBLEMS IN PHARMACEUTICAL CHEMISTRY. 1-3 credits
Prerequisites: PCY 455, and average of 2.75 in all CY and PCY courses taken and permission of the chairman of the department. Library and/or laboratory research on assigned subjects. May be repeated for a maximum of 9 credits with approval of department chairman.

PCY 455—PHARMACEUTICAL CHEMISTRY 1. 5 credits
Prerequisites: CY 373, PGY 361, PHY 303. Correlation of physical, chemical, and biological properties of therapeutically useful inorganic and organic compounds including radio-pharmaceuticals and structure-activity relationships.

PCY 456—PHARMACEUTICAL CHEMISTRY 2. 5 credits
Prerequisite: PCY 455. The second quarter of PCY 455-456-457.

PCY 457—PHARMACEUTICAL CHEMISTRY 3. 5 credits
Prerequisite: PCY 455. The third quarter of PCY 455-456-457.

PCY 472—DRUG DESIGN. 4 credits
Prerequisites: PHY 361, PCY 455. Structure-activity relationships of selected groups of compounds.

PCY 551—VETERINARY PHARMACEUTICAL PRODUCTS. 3 credits
Prerequisite: PCY 455. The chemistry or composition, uses, and manufacturers of the more important veterinary drugs.

PCY 557—PHARMACEUTICAL SPECIALTIES. 3 credits
Prerequisite: PCY 455. The chemistry or composition, uses, and manufacturers of the more important specialties, including vitamins and hormones, found in prescriptions.

PCY 558—PHARMACEUTICAL SPECIALTIES. 3 credits
Prerequisite: PCY 455. The second quarter of PCY 557-558-559.

PCY 559—PHARMACEUTICAL SPECIALTIES. 3 credits
Prerequisite: PCY 455. The third quarter of PCY 557-558-559.

GRADUATE COURSES

PCY 611—SYNTHETIC MEDICINAL PRODUCTS 1. 3 credits
PCY 612—SYNTHETIC MEDICINAL PRODUCTS 2. 3 credits

PCY 613—SYNTHETIC MEDICINAL PRODUCTS 1. 3 credits
PCY 614—SYNTHETIC MEDICINAL PRODUCTS 2. 3 credits
PCY 615—SYNTHETIC MEDICINAL PRODUCTS 3. 3 credits
PCY 621—NATURAL MEDICINAL PRODUCTS 1. 3 credits
PCY 622—NATURAL MEDICINAL PRODUCTS 2. 3 credits
PCY 623—NATURAL MEDICINAL PRODUCTS 1. 3 credits
PCY 624—NATURAL MEDICINAL PRODUCTS 2. 3 credits
PCY 625—NATURAL MEDICINAL PRODUCTS 3. 3 credits
PCY 631—ANALYTICAL AND CONTROL METHODS 1. 5 credits
PCY 632—ANALYTICAL AND CONTROL METHODS 2. 5 credits
PCY 633—ANALYTICAL AND CONTROL METHODS 3. 5 credits
PCY 642—CHEMOBIODYNAMICS. 5 credits
PCY 697—SUPERVISED RESEARCH. 1 to 5 credits
PCY 698—SUPERVISED TEACHING. 1 to 5 credits
PCY 699—MASTER'S RESEARCH. 1 to 15 credits
PCY 799—DOCTORAL RESEARCH. 1 to 15 credits

Pharmacognosy

COLLEGE OF PHARMACY

INSTRUCTIONAL STAFF 1969-70

Johnson, C. H.

PGY 361—NATURAL PRODUCTS. 5 credits
Prerequisite: PHY 301. Plant and animal products used in pharmacy.

PGY 471—PROBLEMS IN PHARMACOGNOSY. 3 credits
Prerequisite: PGY 361 and permission of the instructor. Laboratory and/or library investigation of problems of current interest in pharmacognosy.

GRADUATE COURSES

PGY 601—ADVANCED HISTOLOGY AND MICROSCOPY OF VEGETABLE DRUGS. 5 credits
PGY 603—MICROANALYTICAL PHARMACOGNOSY. 2 credits
PGY 604—CULTIVATION AND PROCESSING OF MEDICINAL PLANTS. 3 credits
PGY 625—DRUG PLANT ANALYSIS. 2 to 4 credits
PGY 626—DRUG PLANT ANALYSIS. 2 to 4 credits
PGY 627—DRUG PLANT ANALYSIS. 2 to 4 credits
PGY 699—MASTER'S RESEARCH. 1 to 15 credits
PGY 799—DOCTORAL RESEARCH. 1 to 15 credits

Pharmacy

COLLEGE OF PHARMACY

INSTRUCTIONAL STAFF 1969-70

Becker, C. H., *Chairman;* Angorn, R. A.; Araujo, O. E.; Blythe, R. H.; Finger, K. F.; Garrett, E. R.; Haupt, C. S.; Lantos, R. L.; Nackman, L. M.; Sisson, N. M.; Torosian, G.

PHY 300—INTRODUCTION TO PHARMACY. 5 credits

Prerequisite: Pharmacy classification or permission. Events leading to the development of the profession and the pharmaceutical industry. An introduction to drugs, dosage forms and processes.

PHY 301—PHARMACEUTICS 1. 5 credits

The first course of the sequence PHY 301-303-401-402. Prerequisites: PS 213, CY 373, MS 301. The course sequence covers the measurement, description and prediction of physical and chemical parameters used in the systems and operations necessary for pharmaceutical product development and dosage forms. Stability and pharmacokinetics, properties of dosage forms, and pharmaceutical adjuncts are also discussed.

PHY 303—PHARMACEUTICS 2. 5 credits

The second course of the sequence PHY 301-303-401-402. Prerequisite: PHY 301.

PHY 361—APPLIED HUMAN ANATOMY. 3 credits

Prerequisites: ZY 202 and pharmacy classification. Gross anatomy of the important organ systems of the human and mammalian.

PHY 363—APPLIED HUMAN HISTOLOGY. 3 credits

Corequisite: PHY 361. Microscopic study of the important tissues and organs of the human and mammalian.

PHY 401—PHARMACEUTICS 3. 5 credits

The third course of the sequence PHY 301-303-401-402. Prerequisite: PHY 303.

PHY 402—PHARMACEUTICS 4. 5 credits

The fourth course of the sequence PHY 301-303-401-402. Prerequisite: PHY 401.

PHY 407—MANUFACTURING PHARMACY. 4 credits

Prerequisite: PHY 401. Source of raw materials, production costs, manufacturing procedures, and preparation of various pharmaceutical dosage forms on a pilot-plant scale.

PHY 463—PUBLIC HEALTH AND COMMUNICABLE DISEASES. 4 credits

Prerequisites: BCY 313 and BCH 403. Prevalent community infectious diseases such as those caused by bacteria, viruses, rickettsia, protozoa, and fungi. Allergy and immunity are discussed.

PHY 501—PHARMACY SEMINAR. 2 credits

Corequisite: PHY 303. Literature investigations and reports by students on problems in pharmacy of current interest.

PHY 503—PHARMACEUTICS 5. 4 credits

Prerequisite: PHY 402. *In vitro* transformation of drugs and prediction of accelerated testing. Considerations in dosage form development.

PHY 504—PROFESSIONAL PRACTICE. 5 credits

Prerequisite: PHY 402. Methods of compounding and dispensing prescriptions, of detecting and overcoming incompatibilities, and checking and pricing prescriptions. The application of pharmaceutical adjuncts.

PHY 521—PHARMACEUTICAL LAW. 5 credits

Prerequisite: 5PH classification. A study of the federal, state, and local laws and regulations relating to all aspects of the profession of pharmacy.

PHY 522—HOSPITAL PHARMACY. 3 credits

Prerequisite: PHY 301. An introduction to the practice of pharmacy in hospitals.

PHY 527—PROBLEMS IN PHARMACEUTICAL SCIENCES. 1-3 credits.
Prerequisites: PHY 402, Laboratory and/or literature investigations of problems in pharmacy of current interest. May be repeated for a maximum of 6 credits with approval of departmental chairman.

PHY 533—PHARMACEUTICAL ADMINISTRATION 1. 4 credits
Prerequisite: 5PH classification. The first part of the course PHY 533-534. A study of the activities involved in the distribution of pharmaceutical goods and services and the effect of third party payment plans on pharmaceutical distribution.

PHY 534—PHAMACEUTICAL ADMINISTRATION 2. 5 credits
Prerequisites: PHY 533 and ATG 201. The second part of the course PHY 533-534. A study of the principles and problems of planning, organizing and controlling a community pharmacy.

PHY 555—CLINICAL PHARMACY. 4 credits
Prerequisite: 5PH classification. Students will attend grand rounds, medical rounds, nursing change of shifts, seminars and various clinics at the Shands Teaching Hospital and Veterans Administration Hospital.

PHY 566—DERMATOLOGICAL PROTECTIVES. 5 credits*
Prerequisite: PHY 402. Composition, formulation, and manufacture of various dermatological products and vehicles. Problems of perfuming, packaging, and preservation.

PHY 582—BODY FLUIDS AND ELECTROLYTES. 4 credits
Prerequisite: PLY 573. Pharmacological treatment of topics related to body fluids, electrolytes, acid-base balance, ion exchange resins, carbonic anhydrase inhibitors, plasma extenders, and parenteral alimentation.

*Available for Graduate major credit.

GRADUATE COURSES

PHY 601—HOSPITAL PHARMACY ADMINISTRATION. 3 credits
PHY 602—SELECTED TOPICS IN PHARMACY. 3 credits
PHY 603—RESEARCH METHODS IN PHARMACEUTICAL SCIENCES. 2 to 6 credits
PHY 604—EQUILIBRIA, COMPLEXATIONS AND INTERACTIONS OF DRUGS. 5 credits
PHY 605—STABILITY AND KINETICS OF DRUGS. 5 credits
PHY 606—PHARMACOKINETICS AND BIOPHARMACEUTICS. 5 credits
PHY 607—ADVANCED TOPICS IN PHARMACEUTICAL SCIENCES. 1 to 2 credits
PHY 611—HOSPITAL PHARMACY SEMINAR. 1 credit. Maximum 3 credits
PHY 643—PHARMACEUTICAL EQUIPMENT AND MACHINERY. 4 credits
PHY 645—PHARMACEUTICAL MACHINERY AND PRODUCT FORMULATION. 4 credits
PHY 647—PHARMACEUTICAL PRODUCT FORMULATION. 4 credits
PHY 653—PARENTERALS. 5 credits
PHY 697—SUPERVISED RESEARCH. 1 to 5 credits
PHY 698—SUPERVISED TEACHING. 1 to 5 credits
PHY 699—MASTER'S RESEARCH. 1 to 15 credits
PHY 799—DOCTORAL RESEARCH. 1 to 15 credits

College of Physical Education and Health

PHYSICAL EDUCATION, HEALTH AND ATHLETICS

REQUIRED PHYSICAL EDUCATION FOR MEN

REQUIRED PHYSICAL EDUCATION FOR WOMEN

Physical Education, Health and Athletics

INSTRUCTIONAL STAFF 1969-70

Sandefur, W. T., *Chairman;* Alexander, R. H.; Allen, R. E.; Bishop, B. E.; Boyd, C. A.; Carnes, J. J.; Crone, E. G.; Deutsch, D. M.; Gilkison, B. G.; Harlan, W. E.; Hester, J. D.; Hicks, D. A.; Holyoak, O. J.; Koogler, C. C.; Lea, R. N.; Leavitt, N. M.; Lee, P. A.; Leilich, R. E.; Lerch, H. A.; McCachren, J. R.; Millar, J. C.; Moore, A. C.; Nuetzel, W. A.; Potter, W. M.; Pye, R. L.; Regna, J. L.; Robbins, S. H.; Scott, T. M.; Shields, D. A.; Smith, B. C.; Stanley, D. K.; Stephens, F. W.; Stevens, B. K.; Tennant, L. K.; Varnes, P. R.; Waglow, I. F.; Williams, W. R.; Zauner, C. W.

These courses are open to:

1. Students who are pursuing professional preparation in the areas of Physical Education, Health Education, or Recreation.
2. Those planning to teach in other areas for which these courses are necessary to meet general preparation or special area requirements.

Others may register only upon special permission of the Chairman of the Department.

PHA 100—TEAM SPORTS FOR MEN. 2 credits
Skills and teaching techniques: volleyball, softball and flag football.

PHA 101—SOCCER AND RELATED SPORTS FOR MEN. 2 credits
Skills and teaching techniques: soccer, speedball and gatorball.

PHA 111—SOCCER AND RELATED SPORTS FOR WOMEN. 2 credits
Skills and teaching techniques: soccer and speedball.

PHA 113—TRACK AND FIELD FOR WOMEN. 2 credits
Skills and teaching techniques.

PHA 114—SOFTBALL FOR WOMEN. 2 credits
Skills and teaching techniques.

PHA 126—SWIMMING. 3 credits
Prerequisite: Sufficient skill to pass a basic swimming test. Skills and teaching techniques.

PHA 201—FOOTBALL FUNDAMENTALS. 3 credits
Prerequisite: 2UC or higher classification. Fundamentals of offensive and defensive football.

PHA 202—BASKETBALL FUNDAMENTALS FOR MEN. 3 credits
Prerequisite: 2UC or higher classification. Fundamentals of offensive and defensive basketball.

PHA 203—TRACK AND FIELD FOR MEN. 2 credits
Skills and coaching techniques.

PHA 204—BASEBALL. 2 credits
Skills, strategy and coaching techniques.

PHA 205—WRESTLING AND CONDITIONING PROGRAMS. 2 credits
Skills and teaching techniques in wrestling and conditioning activities including weight and circuit training, isometric programs, and calisthenics.

PHA 207—GYMNASTICS FOR MEN. 3 credits
Prerequisite: Skill in basic fundamentals. Advanced skills and teaching techniques.

PHA 210—VOLLEYBALL AND FIELD HOCKEY FOR WOMEN. 3 credits
Skills and teaching techniques.

PHA 217—GYMNASTICS FOR WOMEN. 3 credits
Prerequisite: Skill in basic fundamentals. Advanced skills and teaching techniques.

PHA 220—RECREATIONAL SPORTS. 3 credits
Skills and teaching techniques: archery, badminton, bowling, bait casting and other recreational activities.

PHA 224—GOLF. 2 credits
Prerequisite: Skill in basic fundamentals. Advanced skills and teaching techniques.

PHA 225—TENNIS. 2 credits
Prerequisite: Skill in basic fundamentals. Advanced skills and teaching techniques.

PHA 226—SYNCHRONIZED SWIMMING. 2 credits
Prerequisite: PHA 126 or permission of the instructor. Individual, dual, and group techniques; composition and production.

PHA 231—FOLK AND SOCIAL DANCE. 3 credits
Skills and teaching techniques.

PHA 232—MODERN DANCE. 3 credits
Skills and teaching techniques.

PHA 245—LEADERSHIP IN RECREATION. 4 credits
Knowledge of the place, scope and importance of recreation in community settings. Basic leadership skill development through practical application.

PHA 261—INDIVIDUAL AND FAMILY HEALTH. 5 credits
Current findings from medical and health sciences applied to individual and family health.

PHA 262—COMMUNITY AND ENVIRONMENTAL HEALTH. 4 credits
Contemporary health problems and community organization—programs for solving them.

PHA 266—FIRST AID AND MEDICAL SELF-HELP. 3 credits
Approved practices and training in first aid and medical self-help essential for survival in emergencies and during disasters.

PHA 301—FOOTBALL COACHING. 3 credits
Prerequisite: PHA 201 or permission of the instructor. Systems of play, strategy, scouting techniques, organization of practice, and rules interpretation.

PHA 302—BASKETBALL COACHING FOR MEN. 3 credits
Prerequisite: PHA 202 or permission of the instructor. Systems of play, strategy, scouting techniques, organization of practice, and rules interpretation.

PHA 312—BASKETBALL FOR WOMEN. 2 credits
Skills, rules, strategy, and teaching methods.

PHA 313—OFFICIATING FOR WOMEN. 2 credits
Prerequisite: PHA 312. Application of rules and techniques of officiating women's team sports with emphasis on basketball. Includes practical experience in the intramural program.

PHA 326—COACHING SWIMMING AND DIVING. 2 credits
Prerequisite: PHA 126 or permission of the instructor. Methods of coaching swimming teams including the conduct of meets.

PHA 327—COACHING GYMNASTICS. 2 credits
Prerequisite: PHA 207 or PHA 217 or permission of the instructor. Methods of coaching gymnastics and the conduct of meets.

PHA 331—TEACHING FOLK AND SOCIAL DANCE. 2 credits
Prerequisite: PHA 231. Theory and practice in teaching folk and social dance.

PHA 332—DANCE COMPOSITION. 2 credits
Prerequisite: PHA 232 or permission of the instructor. Modern dance composition with respect to form, design, dynamics, and rhythm.

PHA 333—DANCE PRODUCTION. 1 credit
Prerequisite: Permission of instructor. Individual and group composition in modern dance for production including staging and costuming. May be repeated for a maximum of 9 quarter hours credit. Student should consult with counselor about application of these hours toward approved program.

PHA 342—CAMP COUNSELING. 4 credits
The training of counselors for organized camping, including crafts, nature, cooking, and informal activities.

PHA 344—SOCIAL RECREATION. 3 credits
Planning and conducting social recreation programs.

PHA 345—MANAGEMENT OF RECREATION CENTERS. 3 credits
Operation of recreation programs, including facilities, personnel, programs, and problems of administration.

PHA 346—FIELD EXPERIENCE IN RECREATION. 4 credits
Prerequisite or corequisite: PHA 344 and PHA 345. Eight hours of weekly laboratory work to arrange. Supervised experience in the conduct of a variety of recreation activities.

PHA 347—RECREATION PROGRAMS. 4 credits
Prerequisite: Upper Division status and PHA 245. Planning programs and activities for various recreation settings, especially community recreation.

PHA 359—SCHOOL AND COMMUNITY SAFETY EDUCATION. 3 credits
Accident problems in the home, school and community, and organized programs of safety education in elementary and secondary schools.

PHA 361—ELEMENTARY SCHOOL HEALTH PROGRAM. 4 credits
Prerequisite: Upper Division status or permission of the Chairman of the Department of the Professional Curriculum. Health problems of children and school procedures for instruction, services and environment essential for child health.

PHA 362—HEALTH EDUCATION IN THE SECONDARY SCHOOL. 4 credits
Prerequisite: Upper Division status. Health needs and problems of adolescence, techniques of concept-teaching and coordinating health education in secondary schools.

PHA 365—APPLIED ANATOMY. 5 credits
Prerequisite: CBS 261 or equivalent. Body structure and the application of mechanical principles in the analysis of movement.

PHA 366—APPLIED PHYSIOLOGY. 5 credits
Prerequisite: PHA 365. Functioning of the human body; effects of exercise and principles of stress adaptation.

PHA 371—FOUNDATIONS OF PHYSICAL EDUCATION. 3 credits
Background, nature, purpose and contributions of contemporary physical education.

PHA 373—PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL. 3 credits

Prerequisite: Upper Division standing or permission of the Chairman of the Department of the Professional Curriculum. Organization and conduct of physical education activities for the elementary school.

PHA 375—ADAPTED PHYSICAL EDUCATION. 2 credits

Prerequisite: PHA 365. The program of adapted physical education; physiology of exercise and kinesiology as applied to pupils with physical limitations.

PHA 445—RECREATION FOR SPECIAL COMMUNITY GROUPS. 5 credits

Prerequisite: PHA 245 and PHA 347. Principles and practices in planning and implementing programs in special community-group settings.

PHA 446—ADMINISTRATION OF RECREATION. 5 credits

Limited to recreation majors, or those with permission of the instructor. Organizing and administering community and other recreation services.

PHA 449—INTERNSHIP IN RECREATION. 16 credits

Prerequisite: Permission of the instructor. Practical field experience in selected off-campus recreation programs.

PHA 451—DRIVER AND TRAFFIC SAFETY EDUCATION. 5 credits

Prerequisite: Upper Division status and a state driver's license. Analysis of traffic problems. Essential factors in efficient motor vehicle operation including laboratory experiences in simulators, dual control car and on the multiple car driving range.

PHA 452—TEACHING DRIVER AND TRAFFIC SAFETY EDUCATION. 5 credits

Prerequisite or corequisite: PHA 451. Organization, administration and teaching techniques of driver education for public high schools including student teaching.

PHA 461—FIELD EXPERIENCE IN PUBLIC HEALTH. 3 to 5 credits

Prerequisite: Permission of the instructor. Orientation in the conduct of public health programs. Supervised field experiences arranged with official and voluntary health agencies.

PHA 468—PREVENTION AND CARE OF ATHLETIC INJURIES. 4 credits

Prerequisite: PHA 365, or permission of the instructor. Prevention of athletic injuries, including conditioning programs, safe facilities, protective equipment, and proper supervision of practice and contests. Recognition, referral and follow-up of injuries in athletics.

PHA 471—ADMINISTRATION OF PHYSICAL EDUCATION AND ATHLETICS. 5 credits

Administering and measuring the effectiveness of the physical education program, including intramurals and interscholastic athletics.

PHA 473—PHYSICAL EDUCATION IN THE SECONDARY SCHOOL. 5 credits

Limited to physical education majors in the term prior to student teaching. Materials, content, and techniques in teaching physical education in the secondary school.

PHA 474-FIELD EXPERIENCE IN ELEMENTARY SCHOOL PHYSICAL EDUCATION. 3 credits

Prerequisite: PHA 373 and permission of instructor. Supervised experience in a local elementary school.

PHA 550—HUMAN FACTORS AND HIGHWAY TRAFFIC PROBLEMS. 5 credits
Limited to those who are eligible to teach driver or safety education. Human variables in the highway traffic problem, and techniques for modifying driving behavior.

PHA 551—COMMUNITY PROGRAMS FOR MAXIMUM TRAFFIC SAFETY. 5 credits
Limited to those who meet certification requirements in driver education or who are teaching driver or safety education. Functions and programs of public and private agencies in the promotion of traffic safety.

PHA 560—ADMINISTRATION OF SCHOOI HEALTH PROGRAMS. 5 credits
Procedures in administering and coordinating the programs of health agency and school personnel.

GRADUATE COURSES

PHA 601—INTERPRETATIONS OF PHYSICAL EDUCATION. 3 credits
PHA 603—NATURE AND BASES OF MOTOR PERFORMANCE. 5 credits
PHA 605—RESEARCH METHODS IN PHYSICAL EDUCATION, HEALTH EDUCATION, RECREATION. 5 credits
PHA 606—INDIVIDUAL WORK. 1 to 5 credits
PHA 607—SEMINAR IN PHYSICAL EDUCATION. 2 credits
Maximum 4 credits
PHA 610—EVALUATION PROCEDURES IN PHYSICAL EDUCATION AND HEALTH EDUCATION. 3 credits
PHA 612—PHYSIOLOGICAL BASES OF PHYSICAL EDUCATION. 5 credits
PHA 613—PRACTICUM IN EXERCISE PHYSIOLOGY. 3 credits
PHA 616—THE PHYSICAL EDUCATION CURRICULUM. 5 credits
PHA 618—THE COLLEGE PHYSICAL EDUCATION PROGRAM. 5 credits
PHA 620—PROBLEMS IN THE ADMINISTRATION OF ATHLETICS. 5 credits
PHA 633—PROBLEMS IN PHYSICAL EDUCATION. 5 credits
PHA 645—PHYSICAL EDUCATION WORKSHOP SERIES. 1 to 10 credits
PHA 660—ORGANIZATION AND PRACTICES IN PROGRAMS OF SCHOOL AND PUBLIC HEALTH. 5 credits
PHA 661—SCIENTIFIC FOUNDATIONS OF HEALTH. 5 credits
PHA 662—HEALTH EDUCATION PROGRAMS AND PROCESSES IN SCHOOL AND PUBLIC HEALTH. 5 credits
PHA 633—TRENDS AND ISSUES IN HEALTH EDUCATION. 5 credits
PHA 697—SUPERVISED RESEARCH. 1 to 5 credits
PHA 698—SUPERVISED TEACHING. 1 to 5 credits
PHA 699—MASTER'S RESEARCH. 1 to 15 credits

Required Physical Education For Men

INSTRUCTIONAL STAFF 1969-70

Waglow, I. F., *Chairman;* Benz, W. P.; Bishop, B. E.; Boone, W. T.; Chafin, M. B.; Crone, E. G.; Eckdahl, J. P.; Graham, M. E.; Harlan, W. E.; Hester, J. D.; Lee, P. A.; Lerch, H. A.; McCachren, J. R.; Mooney, E. G.; Moore, A. C.; Potter, W. M.; Reese, E. C.; Regna, J. L.; Ryan, M. P.; Scott, T. M.; Stephens, F. W.; Tennant, K. L.; Welsch, W. R.

PLM—SIX QUARTERS OF PHYSICAL FITNESS AND SPORTS FOR MEN.
The first quarter a student will be in the basic program. The following five quarters the student will be in the sports program.

Required Physical Education For Women

INSTRUCTIONAL STAFF 1969-70

Alexander, R. H., *Chairman;* Bishop, B. E.; Chinnici, J. C.; Crone, E. G.; Deutsch, D. M.; Graham, M. E.; Hall, L. T.; Hester, J. D.; Lea, R. N.; Millar, J. C.; Pye, R. L.; Reese, E. C.; Robbins, S. H.; Ryan, M. P.; Sheilds, D. A.; Thompson, J. E.; Waglow, I. F.; Welsch, W. R.

PLF—SIX QUARTERS OF PHYSICAL FITNESS AND SPORTS FOR WOMEN.
One quarter the student will be in the basic program. The following five quarters the student will be in the sports program.

Biological Sciences—Cross College and Cross Department

INSTRUCTIONAL STAFF 1969-70

Appropriate faculty members from the Colleges of Arts and Sciences, Agriculture, and Medicine.

BLY 305—HUMAN BIOLOGY FOR TEACHERS. 8 credits
Basic biological principles and problems as related to humans and human society. Permission of instructor is required for admission to the course.

COURSES FOR ADVANCED UNDERGRADUATES AND GRADUATES

BLY 560—RADIATION EFFECTS AND RADIATION BIOLOGY. 5 credits*
Prerequisites: An undergraduate major in science or bioengineering with senior standing and permission of the instructor. Physical and chemical background of radiation and effects, and survey of biological effects and mechanisms. The emphasis will be on events at the macromolecular and cellular level. Calculus, Organic Chemistry and Biology required.

BLY 565—RADIOISOTOPE THEORY AND TECHNIQUES. 5 credits*
Prerequisite: CY 331 or consent of instructor. The theory of radioactivity, of interaction with matter, radioactive decay, etc. is given in sufficient detail to make the laboratory techniques and practices thoroughly understood.

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*Available for graduate major credits.

GRADUATE COURSES

BLY 601—CELLULAR AND MOLECULAR BIOLOGY. 3 credits
BLY 605—TROPICAL BIOLOGY-ECOLOGICAL APPROACH. 12 credits
BLY 607—ADVANCED TROPICAL BOTANY. 12 credits
BLY 610—ADVANCED TROPICAL ZOOLOGY. 12 credits
BLY 660—SPECIAL TOPICS IN RADIATION BIOLOGY. 5 credits

Military Science—Air Force Aerospace Studies Program

INSTRUCTIONAL STAFF 1969-70

Hudson, J. H., Col.; Butner, O. L., Maj.; Fair, G. H., Maj.; Cory, L. W., Capt.; Torre, R. J, Capt.

In addition to the requirements listed below, each student enrolled must participate in ten hours of Corps Training each quarter. Instruction is progressive, beginning with basic drill and ceremonies and advancing to the exercise of leadership and instruction of subordinates.

GENERAL MILITARY COURSE

MAF 101—THE NATURE OF MILITARY POWER IN THE U.S. 1 credit

The nature and principles of war. National policy and power. The U.S. defense establishment, including the Department of Defense and the Military Structure.

MAF 102—U. S. STRATEGIC OFFENSIVE FORCES. 1 credit

Use and effect of nuclear weapons. A brief study of the U. S. Air Force and the role of the U. S. Army & Navy in the Department of Defense Structure.

MAF 103—U. S. STRATEGIC DEFENSIVE FORCES. 1 credit

Composition and mission of NORAD. U. S. Air Force Defense Command mission and systems for detection, response, and direction. Civil defense.

MAF 201—U. S. GENERAL PURPOSE FORCES. 1 credit

Composition and role of unified commands. Tactical Air Command mission, operations, and weapons systems and their capabilities.

MAF 202—SUPPORT FOR AEROSPACE POWER. 1 credit

A review of major air commands within the USAF that support the operations of the USAF combatant commands.

MAF 203—TRENDS AND IMPLICATIONS. 1 credit

An examination of the sources of world conflict and the efforts of our nation to guarantee peace and security for its people and its allies.

PROFESSIONAL OFFICER COURSE

MAF 311—THE DEVELOPMENT OF AIRPOWER. 3 credits

Introduces the student to AS 300 and the Professional Officer Course. Begins with a review and survey of communicative skills. Traces the development of airpower from the beginning of manned flight through 1961.

MAF 312—AEROSPACE POWER TODAY. 3 credits

Concepts, doctrine, and employment of aerospace power. Surveys the future of manned aircraft. Introduces the subject of astronautics and space operations.

MAF 313—ASTRONAUTICS AND SPACE OPERATIONS. 3 credits

Continuation of astronautics and space operations, with particular emphasis on space vehicle systems, ground support, man in space, and future developments in space.

MAF 411—THE NEED FOR LEADERSHIP AND DISCIPLINE IN THE A. F. 3 credits

The need for Air Force leadership, professional responsibilities of the officer, the need for discipline in the military, and the military justice system.

MAF 412—PRINCIPLES OF LEADERSHIP AND MANAGEMENT. 3 credits
The variables affecting leadership, the trait and interactional approaches to leadership, introduction to military management, and the planning and organizing functions of management.

MAF 413—A. F. MANAGEMENT AND THE JR. OFFICER. 3 credits
The coordinating, directing, and controlling functions of management. Includes personnel policies affecting the junior officer as well as preparation of each cadet for active duty.

Military Science—Army ROTC

INSTRUCTIONAL STAFF 1969-70

Atkins, R. M., Col, PMS; Veley, C. A., LTC; Good, L. E., LTC; Davis, C. J., Maj; Bauer, D. W., Maj; Finley, G. A., Maj; Davis, C. L., Maj; Lawrence, J. W., Maj; Dennis, C. W., CPT; Becknell, J. L., CPT.

There are no prerequisites for any courses. All 300- and 400-level courses are solely for Advanced students. Acceptance to these requires approval of the Professor of Military Science.

In addition to the requirements listed below each student enrolled must participate in Leadership Lab scheduled for two hours per week. Instruction is progressive beginning with basic drill and advancing to the exercise of leadership in conducting the lab for newly entered students.

MAR 101—INDIVIDUAL WEAPONS AND MARKSMANSHIP. 1 credit
Preliminary training to teach fundamentals of marksmanship, safety principles, and good shooting habits.

MAR 102—ORGANIZATION OF THE ARMY AND ROTC. 1 credit
History and organization of the ROTC; purpose and objective of military training, organization of the infantry battalion.

MAR 103—ARMY AND NATIONAL SECURITY. 1 credit
Comparison of the military forces of the world; the Army in support of national policy.

MAR 201—MILITARY HISTORY. 1 credit
Emphasizes the factors which led to the organizational, tactical, logistical, social, and other patterns found in the present-day Army.

MAR 202—INTRODUCTION TO TACTICS AND OPERATIONS. 1 credit
Organization, composition, and mission of basic military teams.

MAR 203—MAP READING. 1 credit
Understanding and use of maps and aerial photos.

MAR 301—LEADERSHIP. 2 credits
Responsibilities and basic qualities of a leader; human behavior; adjustment to army life. Principles and techniques of leadership.

MAR 302—TACTICS; BRANCHES OF THE ARMY. 2 credits
Role of the branches of the Army; application of tactics.

MAR 303—MILITARY TEACHING PRINCIPLES; COMMUNICATIONS; INTERNAL DEFENSE/DEVELOPMENT. 2 credits
Techniques used in planning and presenting instruction; includes practical work. Familiarization with the means and principles of communications. Principles of counterinsurgency and guerrilla warfare.

MAR 401—OPERATIONS AND THE MILITARY TEAM. 2 credits

Staff organization, functions, planning. Decisions. Planning troop movements.

MAR 402—LOGISTICS; MILITARY LAW; ARMY ADMINISTRATION. 2 credits

Training and supply records and reports. Vehicle maintenance. Familiarization with publications and reports. History and application of military law.

MAR 403—WORLD CHANGE AND MILITARY IMPLICATIONS; OFFICER ORIENTATION. 2 credits

The United States as a world power and its inclination and aptitude for conduct of war. Customs of the service; conduct of an officer; management of personal affairs.

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1853